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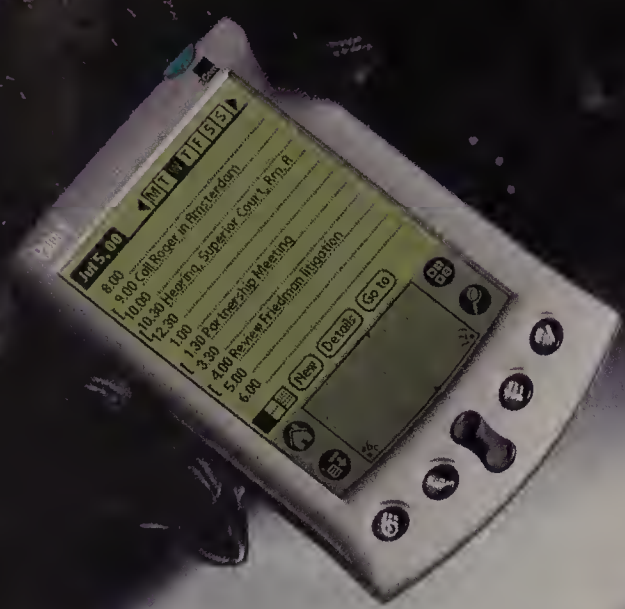

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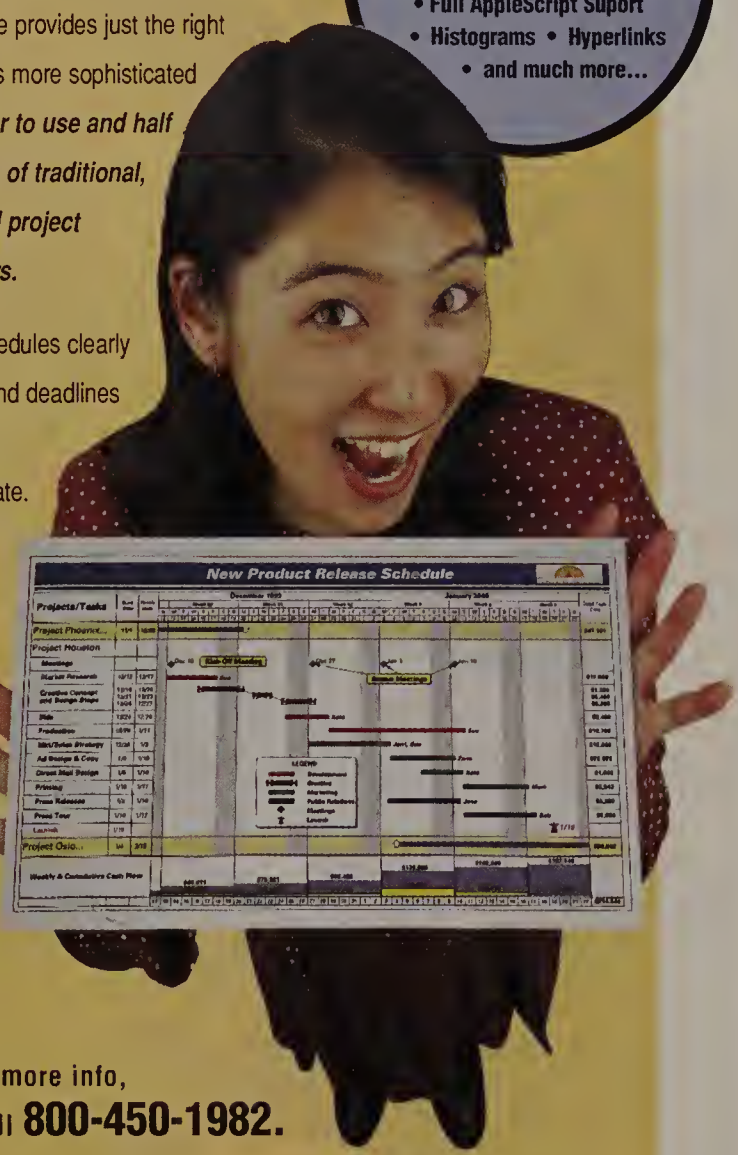

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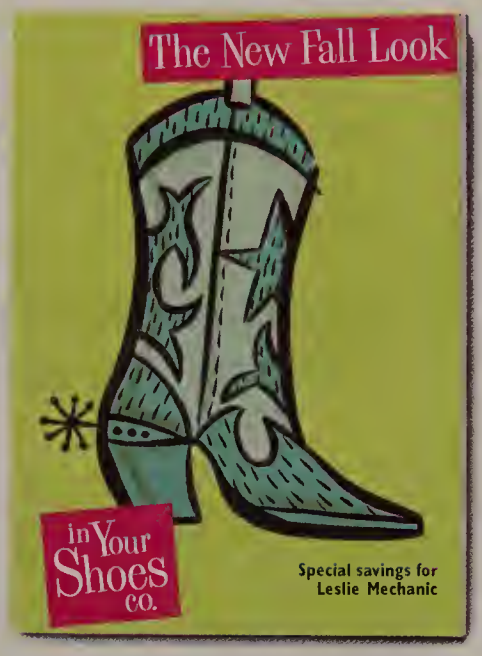

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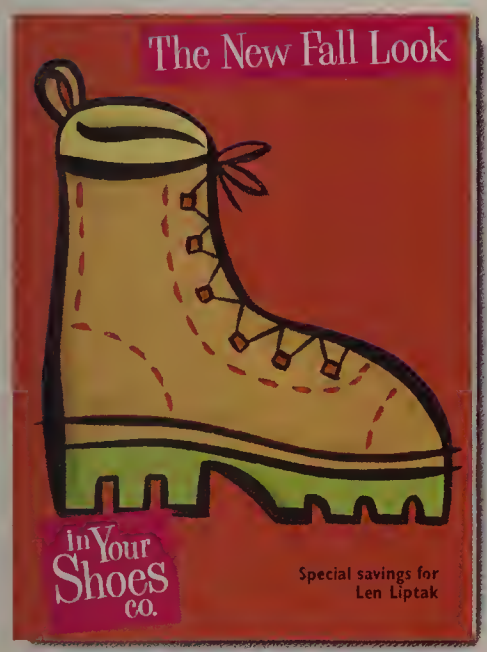

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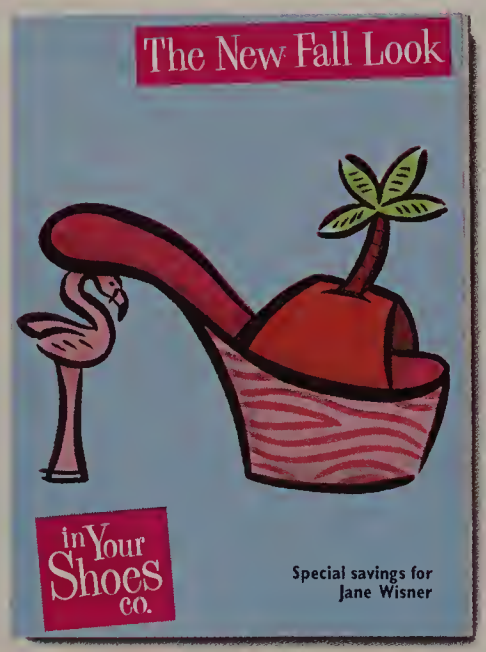

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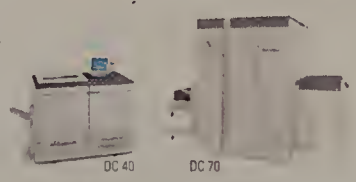

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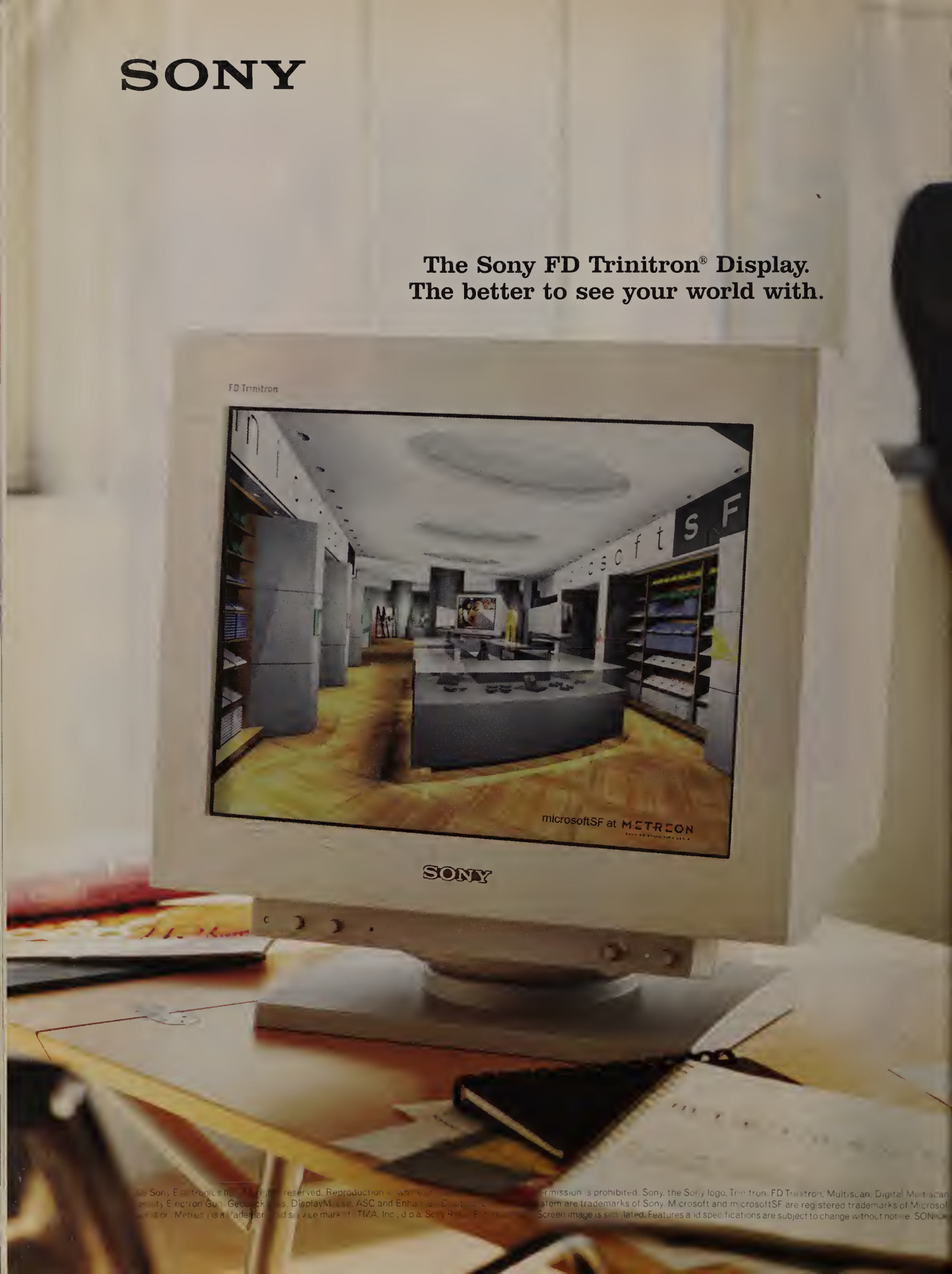

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FD Trinitron

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" ...the Bézier and freehand tools give me the flexibility to create curved-line illustrations and place text on a curved path without ever leaving QuarkXPress."

bézier

Melinda Fawver
GRAPHIC ARTIST
Blue Ridge Printing Company

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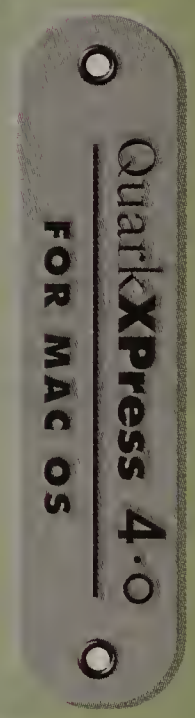
Melinda is very impressed by the power and versatility of 4.0 when she creates her own documents. "I really appreciate the intuitive interface — it helps me to work more quickly and efficiently. And the Bézier and freehand tools give me the flexibility to create curved-line illustrations and place text on a curved path without ever leaving QuarkXPress."

"We always provide our clients with the best technologies available, which means we will always invest in the latest version of QuarkXPress."



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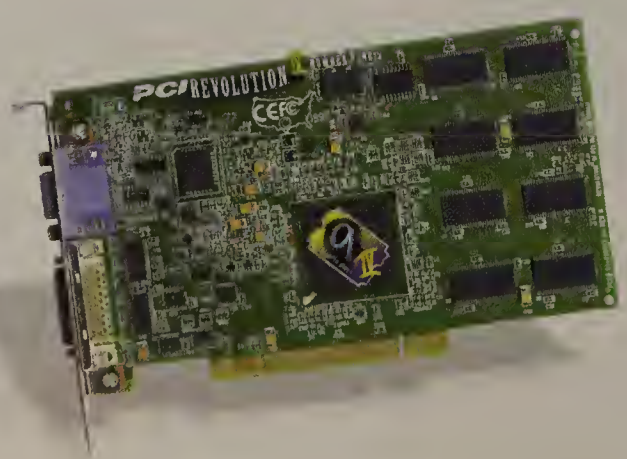

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MAY 1999

Letters

In Favor of FreeHand

I ENJOYED DEKE McCLELLAND'S article "Illustration's Golden Age" (February 1999) thoroughly, since one of the things I do is teach PostScript illustration using the applications he covers. What puzzles me—and has for years—is why the best parts of Macromedia FreeHand are not emphasized enough. For example, the ability to drag color off the color palette to apply it directly to a shape or palette is an amazing time-saver. Also, FreeHand's color list clearly shows exactly which colors are spot, RGB, and CMYK. I can't tell you how much trouble my students have figuring out what colors they are using in Adobe Illustrator.

The list goes on. Illustrator is an also-ran when compared with FreeHand.

DAVID BERGSLAND
Albuquerque, New Mexico

No Respect for Retrospect

ADAM C. ENGST'S ARTICLE ON backing up files ("Be Safe, Not Sorry," February 1999) was helpful, but I wish it had told more about using Retrospect. This program is an incredible pain to use. I'd gladly switch to anything else.

Save and restore functions are so strange to set up that I have no confidence in them, and confidence is what a backup is all about. Retrospect's strange naming convention uses the word *volume* instead of *folder*; and in other ways seems different from the Mac environment. The main menus look easy to use, but once you get to any submenu you quickly get lost in nonsense. Ultimately, I find myself going to the wrong menus all the time.

Do I have to read the 200-page manual to do something as simple as back up

files? Other backup packages I've used had the same functionality with almost no learning curve. A Mac is supposed to be easy to use. Retrospect is not.

DAVID JANES
Indianapolis, Indiana

Cross-Platform Immediacy

I FOUND GALEN GRUMAN'S REview of QuarkImmedia 1.5 (*Reviews*, February 1999) to be pretty accurate, but he forgot one important fact. QuarkImmedia is cross-platform compatible right out of the box, exporting projects for Macintosh (PowerPC and 680X0) or Windows. To create a cross-platform project with Macromedia Director, you need to buy both the Mac and Windows versions of the software. That brings the total cost of Director up to $1,990, a lot more than QuarkImmedia.

JAMIE CROSS
Pittsburgh, Pennsylvania

QuarkXPress Quirk

AS USUAL, DAVID BLATNER'S QUARKXPress tips are smart and enlightening ("Unleash the Power of QuarkXPress 4," *Create*, February 1999). One of the tricks, though, sounded too good to be true. In fact, when I select Text To Box, even holding the option key, the outlined box does not replace the text but moves to the top of the containing box. You can easily verify this by typing lowercase letters without ascenders and then applying the trick.

Whenever Quark decides to give us a tool comparable to the one FreeHand and Illustrator delivered more than ten years ago (converting text to an outline without moving it somewhere else), it will be too late.

SEBASTIANO COSSIA CASTIGLIONI
Milan, Italy

While the Text To Box feature is not buggy, its design is certainly flawed. Converting text to a box sometimes results in outlines that are positioned differently from the original text (even with my tip of holding down the option key). Hopefully this limitation will be addressed in upcoming versions of QuarkXPress.—David Blatner

Upgrade Issues

I WOULD LIKE TO POINT OUT that the Newer Technology's Maxpowr G3 400, which you describe in "Born-Again Macs" (February 1999) as "the clear winner" of your benchmark, has problems working properly in Mach 5 9600. You were much less charitable to the XLR8 Mach Speed G3 400, even though it has no such compatibility problems. I generally find XLR8 daughtercards superior on a number of other

continues

JEFF NEUMANN

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scores, including documentation, software, and ease of installation.

I also feel your description of XLR8's daughtercards as "based on PowerLogix's designs" is inaccurate. These boards were reengineered and only tangentially owe a debt to the original PowerLogix design. XLR8 has done some hard work on their new boards, and it deserves to be acknowledged.

Additionally, unlike the XLR8 Mach Speed G3 400, the Newer G3 400 was not shipping at the time your review was published. While you did not formally endorse the Newer G3 400 in your conclusion, the benchmark identifies it as the fastest card. Your dismissal of the XLR8 400 is curious, considering that XLR8 was the first to ship a 400MHz G3 daughtercard. The bias expressed toward Newer may prove misleading to buyers of these high-end boards, particularly to owners of Mach 5 9600's.

STEPHEN G. TRUJILLO
CEO, MacGurus
Wilmington, Delaware

We didn't recommend any 400MHz cards—including the Newer Technology and XLR8 cards—because in our opinion those cards simply aren't worth the high price for all but the most hard-core users who are unable to upgrade to a new Mac. Sheer speed is not the only factor in choosing an upgrade card.—Ed.

Game Cheers and Jeers

FUTURECOP: LAPD IS ONE OF the best games I have played on the Mac, and I have played 75 percent of the games listed in "Name Your Game" (February 1999). This game rocks—and for only $19.95. It is really two games in one: the basic game of good guy versus bad guy and Precinct Assault, where you play against the computer or head-to-head with another player on the same machine.

The graphics are great—especially with a 3-D card. The transforming mech/hovercraft is fantastic. The game itself is easy to play and control. The help screen is informative and humorous. Electronic Arts has done a great thing porting this to the Mac platform. I will buy every EA title from now on to show my support.

BOB RIVERS
Capitola, California

We agree with your assessment of FutureCop: LAPD—it's a lot of fun at a low price. But what makes this game even cooler in our book is that it is not a Mac port. Electronic Arts developed this game from the ground up on the Mac and then ported it to the PC. Kudos to EA and all the other prodigal game manufacturers who are once again embracing the Mac market.—Ed.

THE REVIEW OF GRAPHIC SIMulations' (GSC) F/A-18 Korea was right on: 4½ mice and "the ace of Mac flying sims." It's outstanding in many aspects.

But the best part of a fighter sim is going up against human counterparts. This is where GSC lost that half a mouse. The networking code has been very poor. It runs well only if you go head-to-head with a single person. GSC states that up to four players can fly together, but this is not true under the current circumstances. Playing with four people has never been stable.

During Apple's hard times, GSC was forced to expand into the PC world. Hornet 3.0 and Korea are now available for PC—with TCP/IP protocol for better multiplayer action! GSC has been promising a release for a TCP/IP patch upgrade over the last year but has failed to come through. I, and others like me, feel that GSC has let down the Mac community, and many have chosen to boycott them. What a shame.

ELTON AGUILAR
Vancouver, Washington

Nothing to RAVE About

WHILE I APPLAUD EVERYTHING Steve Jobs has done for Apple since his return, I am confused why he continues to install less-than-the-best 3-D technology in new machines.

In several recent issues, *Macworld* has highlighted developments in 3-D technology. Each article describes the superiority of the chips produced by 3Dfx. I am confused why Apple continues to install technology produced by ATI that lacks both the developer support and quality of the 3Dfx products.

Hopefully, your continued coverage of the gaming arena will encourage Apple to switch over to the better technology of 3Dfx. This would truly make Apple the premier gaming platform in the world.

ALEC GUROFF
Washington, D.C.

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Look Back, See Forward

I FOUND ANDREW GORE'S TIME machine metaphor particularly enlightening, even thrilling (*The Vision Thing*, February 1999). High-tech speculation has become everyone's other career lately, and I suspect that very few of us are truly qualified to invest our hard-earned money in the current crop of offerings at the most propitious moment. "Wow, I could have had a V8" is a sentiment every computer user has expressed at least once. What to buy, when to buy it, how much to spend . . . it's a crap shoot. But while looking forward involves risk, looking backward can provide data that supports an informed decision.

My journey from a Mac Plus to a Quadra 630 to a G3/233 in five years was not perilous, largely because I subscribe to *Macworld* and I rely upon your veracity. Thank you for helping me make shrewd decisions. The future looks insanely great.

SCOTT ELLINGTON
Redwood City, California

And Finally . . .

DON'T THROW AWAY THOSE OLD Mac magazines and mail-order catalogs! Instead, strategically leave them where people will find them: airplane seats, waiting rooms, bus stations, cafeteria tables. The world needs to know: the Mac is back!

JOHN CHANG
Pittsburgh, Pennsylvania

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CORRECTIONS

In "Presenting the 14th Annual Editors' Choice Awards" (March 1999), the price of Umax Technologies' PowerLook 3000 should have been $7,295. Altamira Group's Genuine Fractals Print Pro sells for $299. m

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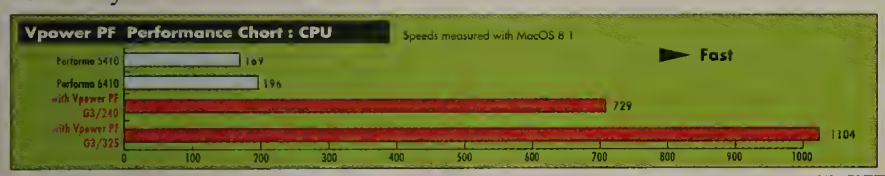

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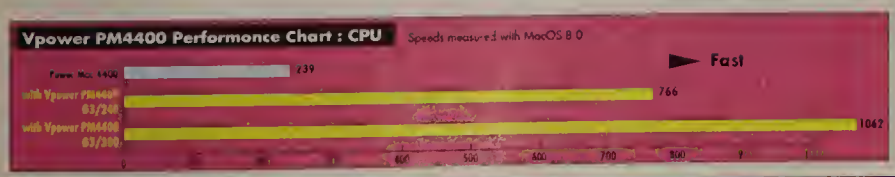

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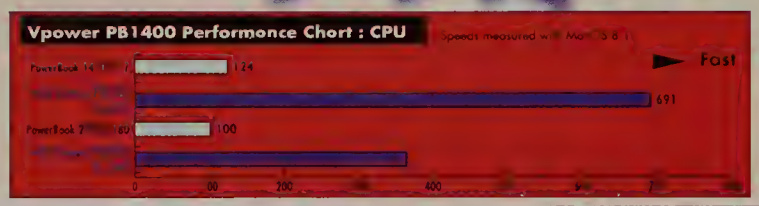

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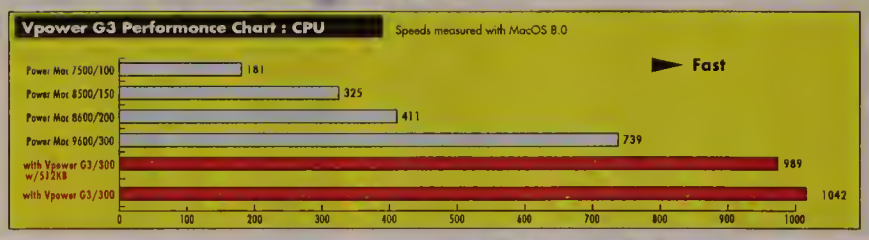

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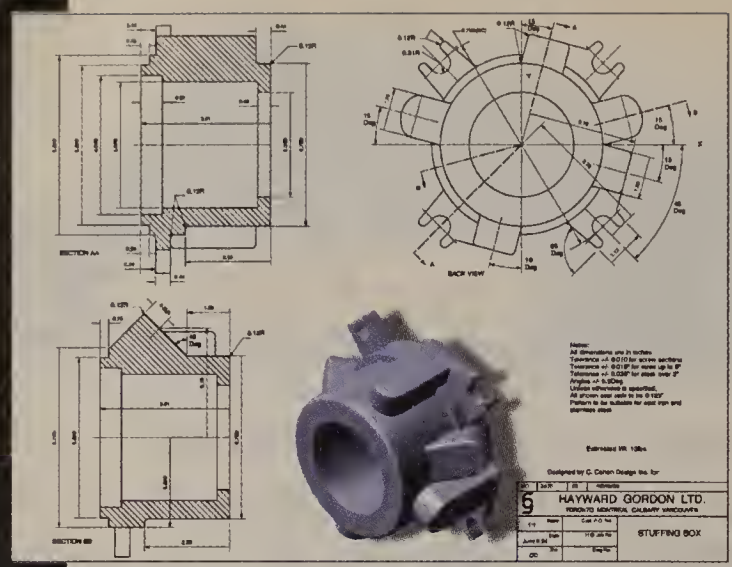

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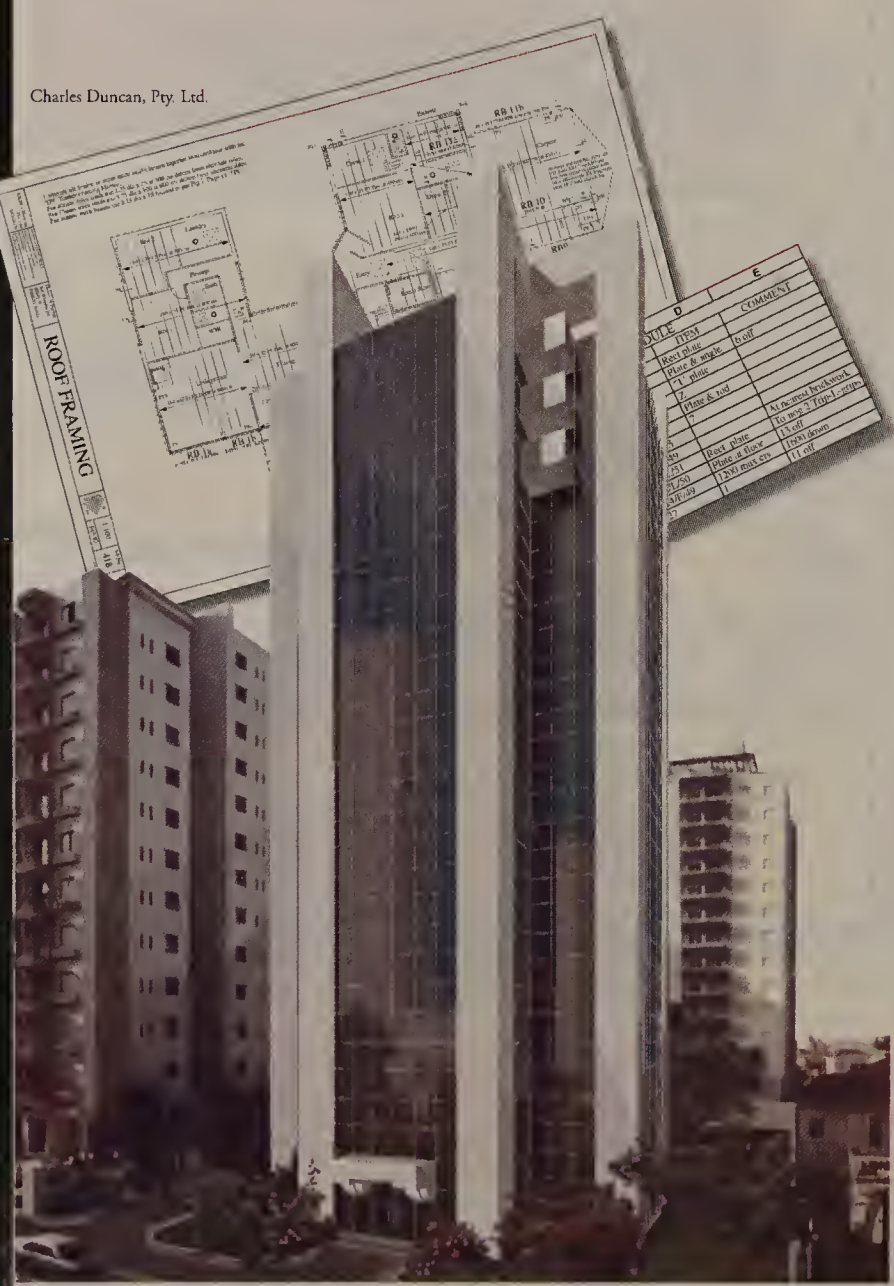

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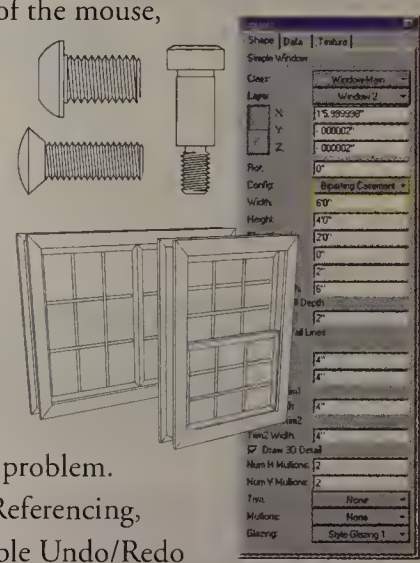

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The Vision Thing

by Andrew Gore

The Ascent of Mac

THE iMAC ISN'T SIMPLY ABOUT STYLE; IT'S ALSO ABOUT EVOLUTION

FOR YEARS, ANTHROpologists have said that the tools a society uses say a lot about that society—its level of technical development, its priorities, even its values. Some have even gone so far as to say that it was the advent of tool usage that kicked hominid evolution into high gear.

Certainly, we've all seen what tool selection can say, rightly or wrongly, about an individual. What do you first think about someone stepping out of a Porsche 911 versus a Dodge Caravan? Now, consider this: it could easily be the same person who just happens to own both.

I was recently reminded of this when reading an article that attributed the iMac's popularity primarily to the cute-and-cuddly factor. This article seemed to say that the only thing iMac customers were concerned with was how good the computer was going to look in their living room.

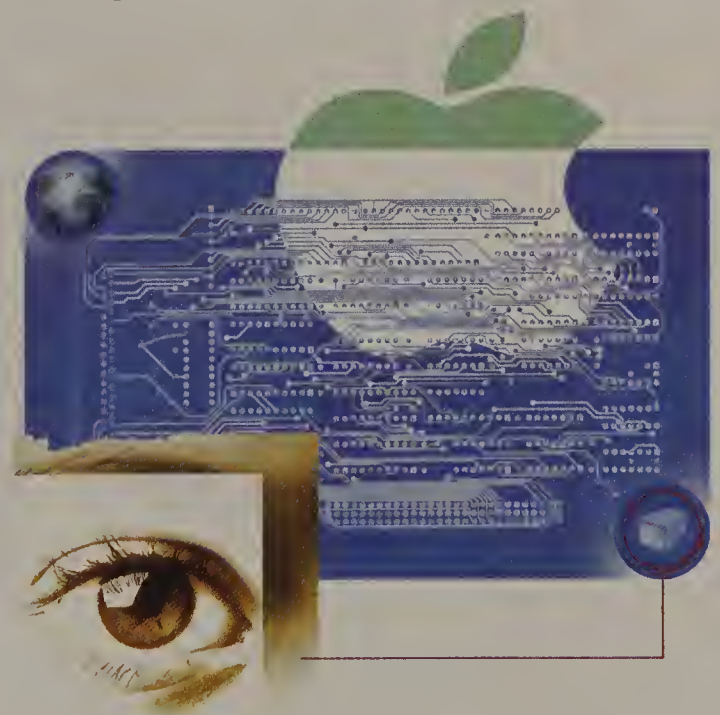
Forget how insulting this conclusion is; it also misses the point. While it's true that iMac buyers probably like the look of their little blue (green, red, purple, or—my personal favorite—orange) wonder, the majority of them bought it to solve a problem: getting on the Internet. According to Apple's buyer research, over 80 percent of all iMac buyers bought their computer for this purpose, and 66 percent were online in the first day. They didn't buy an iMac because of how fast it was or even because of what operating system it ran. They bought it because it solved a problem.

The Nature of Tools

At their simplest level, tools solve problems. Our progenitors first threw stones to kill prey. Later, as tool usage became more sophisticated, the stones were tied to the ends of sticks and used as clubs. As we stopped being nomadic and developed agriculture, club handles got longer and the stones flatter and the hunting tool became a hoe for tilling the fields.

I'd venture a wild guess that early humans didn't at any point worry about whether the club head was made by Intel or IBM, or if the hoe ran Windows. What they were looking for was the best tool to get the job done; and by best, they meant the one that got the best results with the least amount of effort.

I believe that when most new users (in other words, those not already sold on the Mac) consider buying an iMac, they first consider whether it will do the job. Then whether it will do it simply. And finally whether it will do it well. They don't spend a lot of time pondering the things that those of us who bought computers in the first and second wave of computer adoption worried about: processor speed, operating system, RAM, and disk size.



JOHN RITTER

It's not because these so-called third-wave buyers are simpletons but because they realize something fundamental about today's computers: they're all really fast, with plenty of everything. As long as the computer can run a Web browser, it doesn't matter if one operating system has 10,000 applications available for it while the other has only 5,000. What matters is how simple it is to set up, how easy it is to use, and how efficiently it can get the job done.

Your Perfect Mac

The fact is, even today's most sophisticated users are less interested in specsmanship. While a few years ago benchmark charts and detailed technical specifications would have been all that experts needed to make their buying decisions, today even *they* yawn when they see that the latest G3 minitower tops out at 400MHz. They don't want to know only how fast or powerful that new Mac is—they want to know what that extra power does for them. They want to know what problems can be solved with that extra oomph.

That's why, when it came time for *Macworld* to put together its first comprehensive buyers' guide to Apple's latest line of Macs, we didn't just run benchmarks and call it a day. We also gave serious consideration to what each class of user might want to achieve with their Mac, and we made recommendations accordingly, indicating not just which Mac they should buy but also what software and peripherals they might want to consider in building a complete Macintosh system that best fits their needs.

Sure, Apple's newest Macs have style. And yes, style is important. But anyone who believes that someone bought an iMac, a PowerBook, or a blue G3 minitower because it looked cool would probably say that our ancestors went from living in caves to building huts because huts were easier to accessorize. **m**

So what if the tangerine iMac goes great with the cabinets in Andy's kitchen? He really bought it to store recipes. Send your great Mac decorating tips to visionthing@macworld.com.

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Easter

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News

publishing

Adobe Unveils a New Acrobat

ACROBAT 4.0 ADDS NEW FEATURES FOR PRINT PROFESSIONALS

by Stephen Beale

JOHN RITTER

Acrobat, Adobe Systems' portable-document technology, has shown a split personality in recent years, serving as an easy way to place publications online, and also as an alternative to PostScript for print production. With Acrobat 4.0, the latest release, Adobe has bolstered both aspects of the software with an assortment of features that make the technology more flexible and easier to use. However, Mac users will find less to like than their PC counterparts, because some of the most interesting new features will be available only in the Windows version. The software is scheduled to ship this spring.

Acrobat 4.0, which will sell for $249, consists of Acrobat Distiller, for converting PostScript files into Portable Document Format (PDF) files; Acrobat (formerly Acrobat Exchange), for modifying and annotating PDF files; and Acrobat Reader, a cross-platform utility for viewing PDF files that Adobe also offers for free download. Along with the new software, Adobe has introduced an update of the PDF specification that allows for the extraction and editing of text and graphics in PDF files.

Flexible Graphics Mac users will most appreciate Acrobat's new graphics-production features. With Acrobat 3.0, you were limited to making simple text edits in a PDF file. With the new version, you can modify the font, type size, and other type attributes in addition to the text itself. This lets you correct errors in a PDF file without going back to the original application that created it, an especially useful feature if you plan to send the files to a service bureau for high-resolution output.

You can also edit bitmapped images and vector graphics within PDF files. In Acrobat's Preferences dialog box you specify an image editor, such as Adobe Photoshop, and a vector drawing program, such as Adobe Illustrator. When you click on an image in a PDF file, Acrobat launches the appropriate graphics software; when you're finished editing the image, the modified version appears automatically in Acrobat.

Perhaps a bigger boon for print-production pros is the ability to embed ICC color

continues

profiles within PDF files, making the format more amenable to color management. Acrobat 4.0 also supports new graphics-production features in PostScript 3, including Smooth Shading for color blends and Device N, which lets you save duotones, tritones, and six-color images in PDF files. By itself, Acrobat still cannot generate color separations from PDF files, but you can create separations using Crackerjack, a $495 Acrobat plug-in from Lantana (510/744-0282, www.lantanarips.com). The maximum page size is now 200 by 200 inches.

Optimized PDF Acrobat 4.0 makes it much easier to create files for different purposes by letting you choose one of three presets: Screen Optimized for online viewing, Print Optimized for printing from a local ink-jet or laser printer, and Press Optimized for output on a commercial press. Screen Optimized corresponds to the default settings in Acrobat 3.0; it downsamples all images to 72 dpi and converts them to RGB. In addition to these canned settings, you can create a custom setting and place it in a hot folder; when you drop a PostScript file into the folder, Acrobat Distiller automatically converts it to PDF using the options you've specified.

As an alternative, Acquired Knowledge (619/587-4668, www.acquiredknowledge.com) has introduced a $79 Acrobat plug-in called EZ-PDF that creates Mac OS Desktop Printer files that incorporate custom PDF settings. You simply print to the appropriate Desktop Printer to produce a PDF file with the options you want. The program, which also works with Acrobat 3.0, automatically generates a PostScript print file prior to generating the PDF file.

For workgroups, Adobe has added features that make it easier to annotate PDF files. Previous versions let you add electronic "sticky notes" to the file. With the upgrade, you can also type short comments directly on the page, highlight or strike through text, mark up the document using a digital pencil or other tool, or apply a virtual rubber stamp.

Short Shrift? There are many new features here, but PC users get even more. The Windows version of Acrobat 4.0 includes a Web capture function that lets you quickly convert Web sites into PDF files; a digital-signature feature that identifies the document's author for authentication purposes; and macros for creating PDF files from Microsoft Word, Excel, and PowerPoint. The Windows version also lets you extract formatted text, graphics, and tables from PDF files; the Mac release is limited to extracting unformatted text and graphics. Adobe, responding to early complaints from Mac users, says it will add the PC-only features to a future update of the Mac version. PDF files created in Windows can still be read with the Mac version of Acrobat Reader.

Adobe's Software Bonanza

IT'S BEEN A BUSY MONTH FOR ADOBE SYSTEMS. IN addition to introducing Adobe InDesign (see the feature "Adobe Answers XPress," elsewhere in this issue) and Adobe Acrobat 4.0, the company has announced new versions of CyberStudio and PageMaker and has also revealed its long-range plans for PageMill, whose fate was in doubt after Adobe's recent acquisition of CyberStudio developer GoLive.

Adobe has rechristened GoLive CyberStudio as Adobe GoLive and plans to ship version 4.0 for the Mac by the time you read this. Adobe also plans to release the first Windows version of GoLive, which was previously available only for the Mac, sometime in the second quarter. The $299 Web authoring software has become a favorite among professional designers and has received two consecutive *Macworld* Eddy Awards.

The upgrade—originally slated as CyberStudio 3.5 before Adobe acquired the product—is a modest one, offering an improved QuickTime 3 Movie Editor, enhanced XML support, new site-management functions, and a handful of other features.

Adobe has also decided to continue offering its PageMill Web authoring software as an entry-level complement to GoLive. GoLive had offered its own entry-level program, CyberStudio Personal Edition, which was essentially an early version of CyberStudio.

And if you thought InDesign signaled the death of PageMaker, think again. Adobe, positioning its classic page-layout software as a midrange program for corporate users, has announced PageMaker 6.5 Plus, which adds templates and other design aids to the package.

Adobe has also announced PressReady, a $149 color-management program that transforms inexpensive ink-jet printers into PostScript 3 proofing devices. The company expects to ship the product by midyear.—STEPHEN BEALE

printing

Epson, HP Unveil New Ink-Jets

PRINTER TITANS GO HEAD-TO-HEAD

by Stephen Beale

Competition is heating up among manufacturers of ink-jet printers for the Mac. Epson America (800/463-7766, www.epson.com), which has dominated the Mac ink-jet market in recent years, has introduced several new printers, including a large-format model. Meanwhile, Hewlett-Packard (HP; 800/752-0900, www.hp.com) has launched its first serious challenge to Epson, with a pair of new USB printers.

Hewlett-Packard's $299 DeskJet 882C features a built-in USB interface and 600-dpi resolution.

SUZANNE ROADY

Epson Rolls Epson's new Stylus Color 900—successor to the Stylus Color 850—uses

the same variable-dot printing technology that Epson introduced in the Stylus Color 740. However, the four-color printer features a smaller dot size—three picoliters, versus six in the earlier model—and also offers faster print speed: up to ten pages per minute in color. Targeted at business users, the printer will sell for an estimated street price of $449. Epson also offers a networked version, the Stylus Color 900N, for $649. Both models include USB and serial ports for Mac connectivity.

Along with these desktop printers, Epson has unveiled its first true large-format model, the Stylus Pro 9000. The six-color printer, which will sell for $7,995, or $12,995 with an optional EFI Fiery server, uses roll-fed media up to 44 inches wide. Features include high-capacity ink storage and an optional take-up–roller system. With the Fiery server installed, the printer offers PostScript 3 output and Ethernet and LocalTalk connections.

In addition to targeting the printer at poster- and sign-making applications, Epson sees it as a viable option for fine-art output.

HP Moves Meanwhile, Hewlett-Packard is making its first serious moves in the Mac ink-jet market after announcing last summer that it would offer printers for the iMac. The new four-color DeskJet 882C and DeskJet 895C each feature a built-in USB interface and offer image quality vastly superior to that of HP's DeskJet 697c, which the company released for the iMac last fall. Both new printers offer a maximum resolution of 600 dpi and an 8-by-10.5-inch image area. The 882C sells for $299; the 895C, which is faster and includes networking capabilities, sells for $399. HP has been shipping Windows versions of the printers for several months; the company plans to release models with Mac drivers by the time you read this.

publishing

New Cameras Double the Megapixels

NIKON LEADS THE WAY WITH $1,000 MODEL

by Rick Oldano

Two-megapixel digital cameras have been around for several years in the form of professional models that sell for $15,000 to $30,000, but now they're ready for the masses. Nikon (516/547-4381, www.nikonusa.com) and Olympus (516/844-5000, www.olympus.com) have announced $1,000 cameras that offer resolutions of 2 million pixels or more, and Agfa (978/658-5600, www.agfa.com), Kodak (716/724-4000, www.kodak.com), and Canon USA (516/328-5000, www.usa.canon.com) have announced models that fall just short of 2-megapixel resolution. Other companies are likely to follow.

Cool Pixels Nikon's CoolPix 950 and CoolPix 700, which capture images on a newly designed 2.11-megapixel CCD, offer a maximum resolution of 1,600 by 1,200 pixels. They each ship with an 8MB CompactFlash card and work with the auxiliary lenses currently available for the CoolPix 900. The $999 CoolPix 950 features a 3× optical zoom, while the $599 CoolPix 700 is limited to digital zoom. A Best-Shot Selector feature, designed for shooting in moving environments, captures five frames, analyzes the image frequencies, and then automatically discards all but the best shot.

The C-2000 Zoom, from Olympus, includes a 2.1-megapixel CCD—good for 1,600-by-1,200-pixel resolution—and 3× zoom capability. An infrared remote lets you take pictures from a distance. Other features include a four-mode flash and a choice of 100, 200, or 400 ISO film-speed equivalency. The camera stores images on SmartMedia cards; an 8MB card is included in the package. Olympus expects to ship the camera in May.

For photographers with fatter wallets, the Dimage RD3000 from Minolta (201/825-4000, www.minolta.com) offers a 2.7-megapixel CCD, generating images at a 1,984-by-1,360-pixel resolution. Minolta expects that it will sell for $6,000 to $7,000.

Kodak's new DC265 offers 1,536-by-1,024-pixel resolution, just shy of 2 megapixels.

Just Shy Agfa's new ePhoto CL50 lacks a 2-megapixel CCD but uses PhotoGenie software to boost resolution from 1.3 to 1.9 megapixels. The camera offers 1,600-by-1,200-pixel, 1,280-by-960-pixel, and 640-by-480-pixel resolution and lets you tag shots you want to convert into panoramic vistas. You can

continues

Product WATCH

Fireworks on the Web Time for the sequel: the $199 **Fireworks 2**, an upgrade to Macromedia's (415/252-2000, www.macromedia.com) popular Web graphics editor, adds more support for JavaScript behaviors, a larger catalog of image effects, more-sophisticated export features, and improved color control.

One Drive for Many Share CDs and DVD-ROMs over a network with the **DiscZerver** series of thin servers from Microtest (602/952-6400, www.microtest.com). **DiscZerver 2.0**, **DiscPortVT**, and **DiscPort2** let multiple network users simultaneously access information from a single CD or DVD. You can also record CDs by adding a CD-R drive to the network.

PC for Blue G3's Orange Micro (714/779-2772, www.orangemicro.com) has updated its PC compatibility cards to work with the blue Power Mac G3's. The new **OrangePC 625**, **PCfx**, and **665** cards also boost hard-drive performance, the vendor says. Prices begin at $499.

Suitcase Changes Hands **Suitcase**, the font utility formerly offered by Symantec (408/253-9600, www.symantec.com), is now available from Extensis (503/274-2020, www.extensis.com), which plans to ship a new Mac OS 8.5-compatible version by July. Direct questions about previous versions to Symantec.

—EDITED BY MICHAEL GOWAN

stitch together tagged photos with the included PhotoWise software. The camera also offers a 2-images-per-second burst mode at 640 by 480 pixels.

Canon's PowerShot Pro70, announced in 1997 and oft delayed, offers a resolution of 1,536 by 1,024 (1.6 million) pixels and 2 CompactFlash slots.

Kodak's $999 DC265, successor to the DC260, features the same resolution as the Canon camera, along with 3× zoom and a 16MB CompactFlash card. The camera, which sports a USB interface, also boots much faster than its predecessor. Kodak has also announced the DC240, a $699 camera with 3× zoom and 1,280-by-960-pixel resolution, and the DC200 Plus, a $399 model that offers 1,152-by-864-pixel resolution.

publishing

USB Readers Play the Cards

NEW PRODUCTS LET YOU READ SMARTMEDIA, COMPACTFLASH CARDS

by Michael Gowan

Apple's iMacs and the recently introduced blue Power Macs G3's—lacking the familiar serial port—pose a challenge if you want to download images from a digital camera. Even if your Mac has a serial connection, transferring pictures to your hard drive can be painfully slow. Fortunately, there are alternatives: San-Disk (408/542-0500, www.sandisk.com), Newer Technology (316/943-0222, www.newertech.com), and Microtech (203/482-9402, www.microtechint.com) have introduced inexpensive USB devices that can quickly transfer images stored on CompactFlash or SmartMedia cards, the most popular storage media for digital cameras.

Newer Technology (left) and SanDisk have introduced inexpensive card readers.

For cameras that store images on CompactFlash cards, SanDisk's $89 USB ImageMate—currently shipping—transfers images at up to 750 Kbps. Another CompactFlash option is Newer's $99 uFlash CF, which downloads images at 900 Kbps. For cameras that use SmartMedia cards, Newer's $89 uFlash SM offers the same transfer rate. Both Newer readers are scheduled to ship by the time you read this.

Not sure which media you'll be using? Microtech's $89 USB CameraMate reads both. Set to ship by the time you read this, the CameraMate can download images from CompactFlash or SmartMedia cards at up to 1.2MB per second.

The matchbook-size CompactFlash cards, which can store up to 48MB apiece, work with digital cameras from Kodak, Agfa, Nikon, Epson, and other companies. Cameras that support SmartMedia include models from Toshiba, Olympus, and Fuji. The cards, which are much thinner than CompactFlash media, hold up to 16MB each.

New Directions for Quark

FACING A POTENTIALLY STIFF CHALLENGE TO ITS flagship page-layout program, Quark (800/326-3946, www.quark.com) has offered a preview of QuarkXPress 5 as well as several new page-layout programs aimed at specialized publishing segments, such as package and catalog design. The challenge, of course, comes from Adobe Systems, whose new InDesign software is targeted squarely at QuarkXPress (see the feature "Adobe Answers XPress," elsewhere in this issue).

Quark won't say when it expects to ship QuarkXPress 5, but the company has identified four broad functions that you can expect in the upgrade: a built-in table editor, document layers, HTML export, and PDF import.

The new table editor, in addition to letting you specify the appearance of rows and columns, will permit the import of text or graphics into cells. You'll also be able to apply blends to the table background.

The layers function will let you place text and graphic elements on separate layers that can be hidden, merged, and modified in other ways. For example, you'll be able to specify how different layers interact with each other when wrapping text; if you have text on one layer, a circular graphic on a second layer, and a rectangular image on a third, you'll be able to see how the text would look when wrapped around either graphic.

A new Articles palette will let you identify elements within a document that should be included in a Web page. You can then export those elements in HTML format, with the option of mapping the document's style sheet to specific HTML tags.

The PDF import option will let you drag and drop a PDF file into QuarkXPress, where it will appear as a graphic object.

Quark also plans to release a set of stand-alone page-layout applications targeted at specialized design and publishing segments. One such product, code-named Wrapture, will be a page-layout and prototyping program aimed at package designers. In addition to providing specialized design features, Wrapture will include 3-D–modeling and –rendering functions that let you see how the package will look in its final form. Based on early demonstrations, it appears that the simulations will have a high degree of realism: you'll be able to prototype transparent-plastic package elements and place multiple packages on a virtual store shelf to see how they will look in a retail setting.

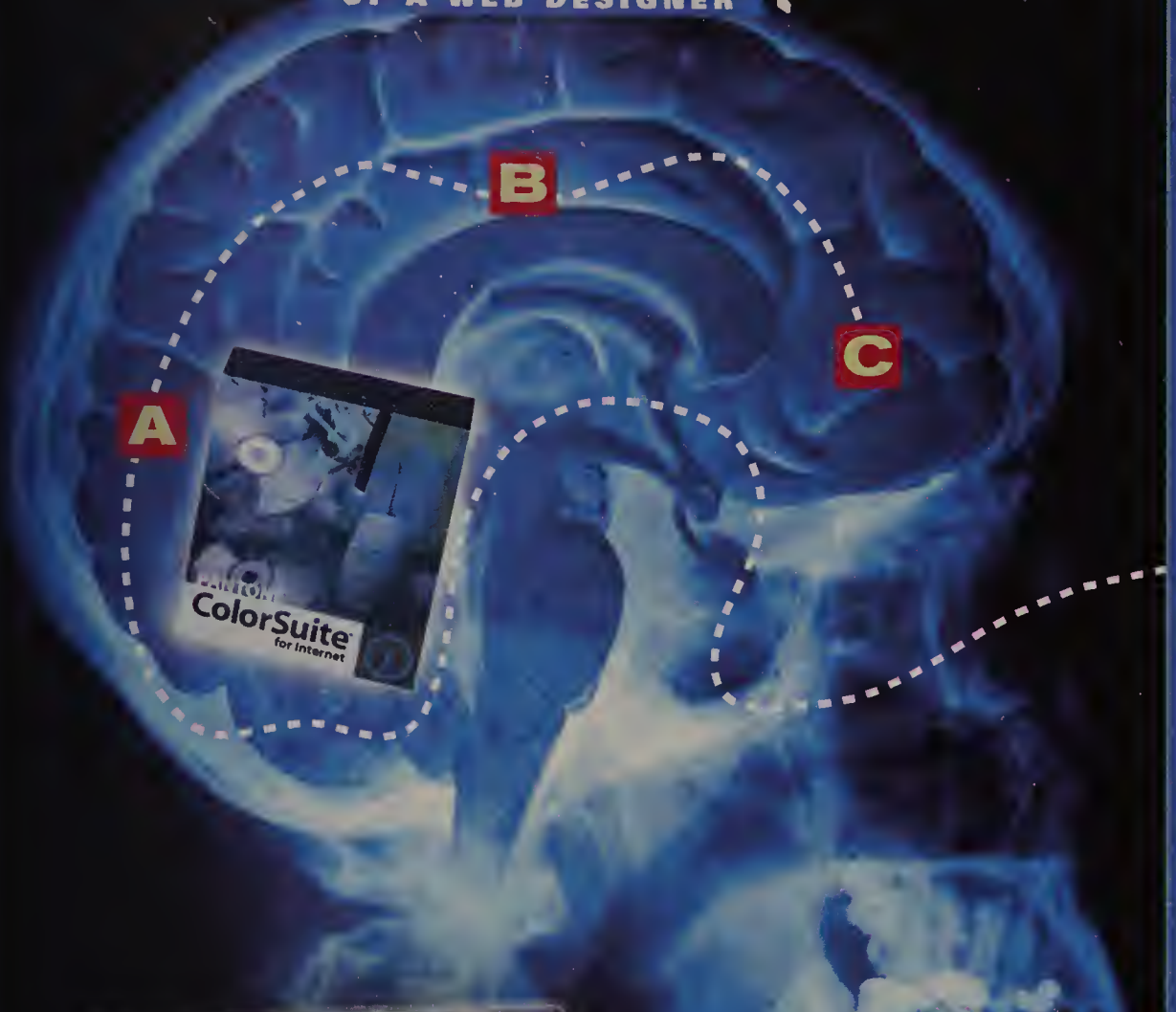
Quark is also developing a workflow-management and layout application, code-named Cypress, for catalog publishers. A forthcoming Web-site–production program, code-named Troika, will let you extract XML data from QuarkXPress documents and will also include tools for designing Web templates.—STEPHEN BEALE

ARNOLD TIOSEJO

PANTONE CREATIVE SERIES #1

Anatomy

OF A WEB DESIGNER



(Interactivus designeris)

DEFINITION: Grossly deformed brain due to perceiving the world in 216 colors, and futile attempts to explain "Web design" to relatives.

ANOMALIES:
Fig. A: Enlarged Right Brain.

RESULT: 24/7 indestructible creativity

FIG. B: Atrophied Left Brain.

RESULT: Blatant abuse of technology; disregard of deadlines; difficulty wearing suits.

FIG. C: Absence of Frontal Lobe.

RESULT: Inability to navigate in real-life.

Brain Storm

During concept development, subject acts out when client requests "blinking text." Mood swings from despondency to euphoria with exposure to **PANTONE® ColorWeb® Pro** software, as subject realizes PANTONE Color can be created in Web authoring software and converted to the closest Internet-safe color.

Brain Drain

Defiance of authority figures causes irritability as subject justifies color choices. Seratonin levels drop requiring stimulants. Homicidal tendencies abate with the **PANTONE Internet Color System™** fan guide, which shows client 216 Internet-safe colors.

No Brainer

Production creates high anxiety. Traumatic color memories invite paranoia. The **PANTONE Digital Color Guide** - a reality check that provides RGB and HTML color values of 1,012 PANTONE Shades - proves that a color match is not a hallucination.

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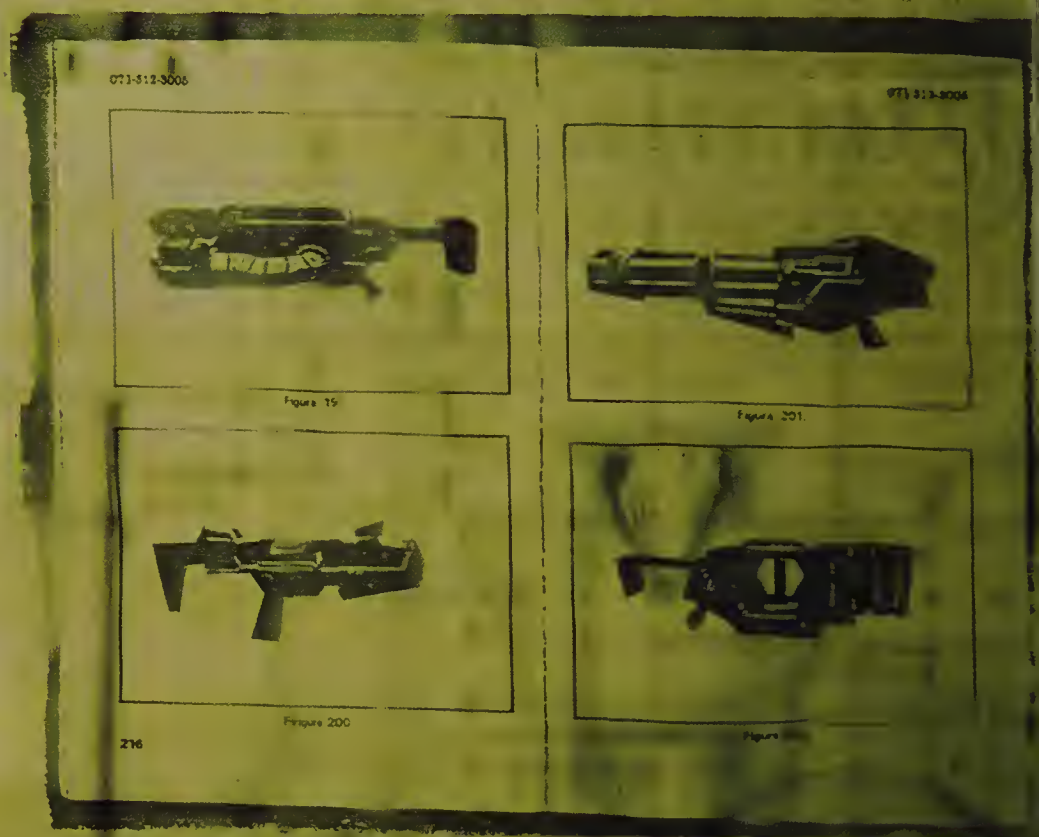
19:42 You learn the hard way in the outer sectors... Like never get into a drinking contest with a three-headed Bukan. Never assume a Strogg is dead even when he's nothing but bloody scraps of shrapnel. And never go to bed with a Rabaal no matter how many breasts she has.

19:11

THE LINE BETWEEN MAN AND MACHINE SHOULD NEVER HAVE BEEN ERASED.

Blood vessels and wires should never have been crossed. Souls and circuitry, brain stems and processors.



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U.S. MARINE CORPS TARGET

U.S. MARINE CORPS 25-METER ZEROING PROCEDURES

	LINE NO.	EVALUATION
1	Large, complex missions	What you do in one level could affect another. One false move and you could alert security, flood a passageway, or worse.
2	Superior artificial intelligence	The enemy is far from stupid. They will evade attacks, maneuver into strategic attack locations, and hunt your ass down.
3	Intense environments	Man gun turrets. Blow up subways. Smash glass. Toss grenades with perfect control. Duck to evade hits. Give them Hell.

17:05 It's either us or them this time. We lose, and we all end up bratwurst on the grill of some unspeakably mechanized carnivore. We win, and the former Coalition of Man can start rebuilding the cities on Mars, Olympus, even Earth. Who knows – they might even get the old interplanetary football league going again. God, I miss Monday Night Football.
18:03 Grotesque images of Strogg have been filling my sleep at night. Their metallic spines jutting awkwardly through muscle, skin and connective tissue, masks of human facial skin smeared and bonded to their cyber-alloy heads, crude but powerful weapons jammed into oozing, gaping sockets. Thank God the endless sleep ahead is dreamless.
"...there's simply nothing on this planet that can touch Quake II."
PC Gamer
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Get this...

...before you get this

Of mice and lemons.

You need one to avoid the other. After all, buying computer products isn't easy, without reliable advice, that is.

With hundreds of Macintosh products to choose from, you need to know which ones to buy.
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How much it costs.
And how much it's worth.

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Coming May 1999.

From the editors of Macworld magazine

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Get it right.

Reviews

Adobe After Effects 4.0

COMPOSITING

POWERHOUSE BEEFS UP

STUART BRADFORD

ADOBE HAS FINALLY RELEASED After Effects 4.0 after a three-year wait, and longtime users will find this the most attractive upgrade in the product's history. Although it still doesn't achieve perfection, version 4.0 offers major new capabilities and a significantly improved interface, with enhancements that reflect the needs of real-world users.

Push Those Pixels

Both flavors of After Effects, Standard and Production, let you combine still images with movie files, giving you a myriad of options and a fine degree of control. The Production bundle—which targets professional tasks such as compositing 3-D elements onto a live-motion background—ships with a considerably larger selection of visual and audio filters, better tools for advanced compositing tasks, and more-robust keyframe-manipulation options. The two versions are virtually identical otherwise, and users can share projects between them.

You'll first notice the improvements in version 4.0 when you import content from Adobe Illustrator, Photoshop, or Premiere. After Effects fully supports Photoshop's Adjustment Layers, Layer Effects, and layer-transfer modes (including those new to Photoshop 4.X and 5.X) in imported Photoshop documents. The program also supports layered Illustrator documents and some of the features new to Illustrator 8, such as Gradient Meshes. Each layer can have up to 128 associated masks, sufficient for even the most maniacal masking adventures.

In a surprising move on Adobe's part, After Effects also lets you import Premiere projects directly, albeit with the expected limitation: because it doesn't support Premiere's special-effects filters and transitions, you must re-create them after you import the project. This improved support for native file formats, although far from sexy, is an important and practical addition for production professionals, and it greatly streamlines animation projects.

The program's interface, although largely unchanged from earlier versions, better accommodates serious work and brings After Effects in line with the interface standards Photoshop and Illustrator have set. You can now use color coding to distinguish layers and parameters in the Timeline window, and markers let you jump quickly to specific spots on the timeline. Tabbed, rearrangeable windows

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OUTSTANDING: ♦♦♦♦♦ VERY GOOD: ♦♦♦♦ GOOD: ♦♦♦ FLAWED: ♦♦ UNACCEPTABLE: ♦

make it easy to customize control-screen configurations, a nicety we've grown accustomed to in Photoshop.

One of the biggest drawbacks of working with earlier versions of After Effects was the inability to evaluate a project's results without resorting to an external playback program such as Apple's MoviePlayer. Now, given enough RAM, After Effects can render a project directly into memory and play the movie with full-motion quality. A 320-by-240-pixel movie can play in near-real time on a lower-end Power Mac; G3 owners can play NTSC-resolution video at 30 fps (available RAM limits the length of clips). This is a boon to pro animators and novices alike; the sheer number of parameters you can control in After Effects means that you need to see a reasonable representation of a layered composition's actual rendered playback speed.

Colorful Interface After Effects' interface has undergone a welcome face-lift in version 4.0, with tabbed windows and color coding for layers in the timeline.

Effectual Effects

After Effects has always been a laboratory for special-effects experimentation, and version 4.0 takes the toys to a whole new level. The new distortion tools, for warping and reshaping, are smooth and organic; for example, you can use the Reshape filter to stuff someone's face into a soda bottle or use the Warp filter to make a movie look like it's playing on a sheet of pliable rubber. In fact, used creatively, these filters (along with animated opacity settings for layers) offer a somewhat labor-intensive but very workable approach to morphing—an effect that typically requires a dedicated program.

Another addition is Adjustment Layers, which (unlike their Photoshop counterparts) let you apply *any* effect filter in After Effects—not just color-correction tools—to multiple layers simultaneously. This astounding feature significantly streamlines the otherwise tedious process of applying filter effects to multiple layers. Instead of applying a blur filter to 20 separate layers by hand, you can simply create a new Adjustment Layer, apply the Blur filter to it, and position the Adjustment Layer directly over the desired layers; this automatically applies the blur filter to all underlying layers.

Another new feature (in the Production bundle only) is Particle Playground, which appears to be a basic particle-animation system until you start to explore it. Despite the constraints of After Effects' 2-D realm, a robust physics simulation is going on under the hood of this plug-in. For example, if you've brought a rendered 3-D logo with an alpha channel into After Effects, the particles you create with Particle Playground can interact with the logo in some surprising ways. When a particle stream hits the edge of the logo's alpha channel, particles can bounce off the logo, change color, slow down, and speed up. In addition, you can use any layer (including type) as a source for the particle shape, opening the door to slick animated-type effects that haven't been feasible on the Mac until now.

Other new drawing tools let you create basic shapes such as ellipses, but you still can't paint directly on video clips. You can generate animated titles and text with the Basic and Path Text tools, which offer fully animatable kerning, baseline spacing, tracking, and "jitter" functions.

In the realm of video production, editors don't live by pictures alone; audio is sometimes more than half the battle. Although After Effects 4.0 doesn't render external audio editors obsolete, it offers significantly enhanced audio processing overall, with new equalization and tone controls in both editions of the program. Experienced and new users alike will be delighted with the real-time audio scrubbing: to play audio tracks, simply hold down the ⌘ key while dragging the cursor in the timeline. That makes it easy to place keyframes so they synchronize precisely with sound, and it's perfect for music-video and postproduction jobs.

But After Effects' best audio-filter enhancements are in the Production bundle, with its new filters for adding echo, flanging, modulation, and equalization effects. You'll still want to do your industrial-strength editing in a separate audio-processing program, but these additions are welcome nonetheless.

Wish List

The single most obvious omission in After Effects 4.0 is the lack of an integrated *z* space, a crucial feature for a wide array of multidimensional layering effects. For example, creating a commercial special effect—such as a flock of video displays floating toward a distant horizon and casting shadows on one another—is a tedious process, especially if you want to combine the video planes and the rendered 3-D elements with any degree of realism. The included Basic 3D plug-in is just that—basic—and although third-party alternatives help, they can't match true, integrated *z*-space functionality.

After Effects' render-management capabilities, although noticeably improved for single-project output, still don't allow you to render multiple projects as a batch. (The workaround is to put all your render projects into a single project file.) And many of the cool new special effects appear only in the Production version; the Standard version has no distortion tools, not even a Twirl filter. The special-effects plug-ins aren't even available as an option with the Standard version. Third-party developers offer a spectrum of special-effects plug-ins, but it would be nice if Adobe offered incremental upgrades to the Standard version.

Macworld's Buying Advice

Adobe After Effects 4.0 is a solid upgrade and a natural choice for anyone getting into the field of motion graphics. Become an expert in After Effects, and someday you just might see your name in the credits of some galactic space extravaganza on the big screen.—DAVID BIEDNY

RATING: ♦♦♦♦½ **PROS:** Extensive special-effects and animation tools; RAM-based preview; filter support in Adjustment Layers. **CONS:** Weak integrated 3-D effects; batch rendering needs improvement. **COMPANY:** Adobe Systems (408/536-6000, www.adobe.com). **LIST PRICE:** Standard version, $995; Production bundle, $2,195.

QuickTime 3 Authoring Tools

LIVESTAGE AND ELECTRIFIER PRO: POWERFUL BUT FLAWED MULTIMEDIA ENVIRONMENTS

MOST QUICKTIME MOVIES ARE passive affairs, played from start to finish; they're really little more than digital versions of videotapes. Totally Hip Software's LiveStage 1.0.1 and Electrifier's Electrifier Pro 1.0 have the potential to change that. These authoring tools tap into QuickTime's ability to combine multiple media and enhance them with interactivity. But although Electrifier Pro and LiveStage show great promise, both programs feel like works in progress.

Common Ground

Mirroring the versatility of QuickTime itself, both Electrifier Pro and LiveStage have innumerable applications. On one level, they let you create QuickTime movies containing clickable hot spots (which link to Web pages) and navigation buttons, complete with rollovers. With either program, you can create the kind of visually engaging Web-navigation screens commonly associated with Macromedia Flash and Shockwave. If you're planning to add QuickTime content to your site anyway, now you can take the next step and build your navigation mechanisms around QuickTime, too; the same plug-in that handles your site's conventional movies can handle its navigation schemes as well. Indeed, given that its installed base is larger than Shockwave's, QuickTime may now be a better choice for some interactive Web projects.

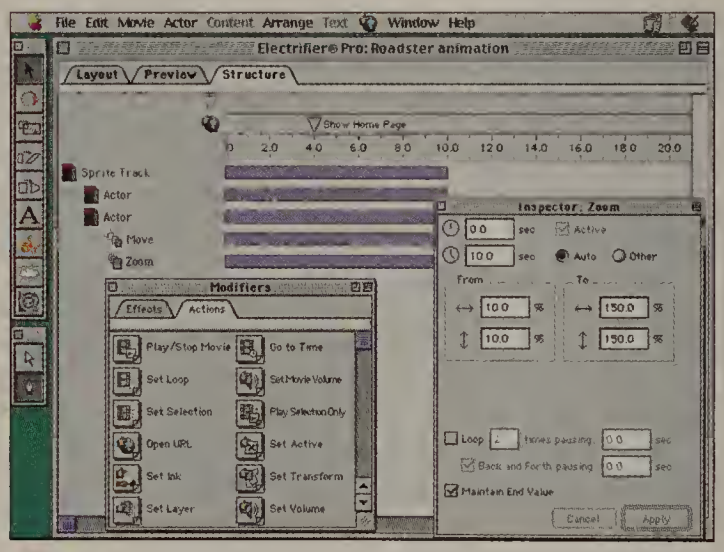
On another level, both programs let you combine a multitude of QuickTime media formats. You can add soundtracks to QuickTime VR scenes, add bandwidth-friendly vector graphics to conventional movies, and create movies containing still images that slide across the frame while MIDI soundtracks play.

Both programs also support QuickTime's built-in special effects, including fire, clouds, scratched movie film, and color tinting, plus such transitions as dissolves and wipes. These goodies are built into QuickTime, so you can create exotic effects—such as a pond that ripples when a user clicks on it—with virtually no increase in file size.

Because these programs produce QuickTime movies, you can play your projects on a Mac or Windows computer using Apple's MoviePlayer utility. You can also embed them in any QuickTime-savvy document, from a Web page to a Microsoft Word file to an Adobe Acrobat document. Try *that* with Macromedia Flash or Shockwave.

Finally, both programs need better documentation; their manuals are supplied only in electronic form and, worse, are poorly organized and light on tutorials.

Each program arrives at these parcels of common ground in its own way. Electrifier Pro offers a drag-and-drop authoring environment and direct support for virtually every media type QuickTime supports. But it also has a steep learning curve, one that's made even steeper by the poor documentation and a sometimes confusing interface.



Interactive Authoring Electrifier Pro's Structure view displays a project's timeline. You use the Modifiers palette to specify actions and effects and the Inspector palette to enter parameters.

In contrast, LiveStage relies on a built-in scripting language for interactivity and supports only some of QuickTime's media types. LiveStage also isn't as versatile as Electrifier Pro, although its scripting language allows you to create projects that Electrifier Pro can't handle.

LiveStage comes with WebPainter 3.1, an animation program Totally Hip sells separately for $70. Version 3.1 builds on its predecessor's solid feature set by adding a vector text tool, an improved magic-wand tool (now with adjustable tolerance), and enhanced animation features.

Importing and Designing

In Electrifier Pro, you do most of your work in a single document window that sports three tabs: Layout, Preview, and Structure. The Structure tab is a timeline view denoting the duration of the imported media elements, which Electrifier Pro calls *actors* (see "Interactive Authoring").

You can import items by using menu commands or simply by dragging and dropping them from the Finder. Electrifier Pro can import QuickTime movies and every QuickTime-supported media type as well as Adobe Photoshop and Illustrator files. You can also add QuickTime data tracks, each of which can hold media elements and can be selectively shown, hidden, and animated during playback.

In LiveStage, you must add elements to the Library palette before you can import them, a cumbersome process compared with Electrifier Pro's drag-and-drop approach. LiveStage supports all QuickTime still-image and audio formats, but it can't import QuickTime movies themselves. You read that correctly: LiveStage *creates* interactive QuickTime movies and gives you full control over QuickTime movie tracks, but it does not let you add existing QuickTime movies to a LiveStage project. To create a project that controls a QuickTime movie—for example, to add a panning soundtrack to a QuickTime VR panorama—you must use Apple's MoviePlayer. It's an awkward process that can make testing and debugging a project far more time-consuming than necessary.

Both programs offer layout views for designing a project. In Electrifier Pro's Layout mode, you can position elements, change their front-to-back stacking order, and add text and effects. The Inspector palette lets you specify precise positioning and change an element's ink characteristics (to make an element's background transparent, for example).

Electrifier Pro's layout aids are of only fair quality. You can have objects snap to

a grid, whose dimensions you can specify, but you can't display the grid. Worse, you can't use the keyboard's arrow keys to nudge an item's positioning in single-pixel increments. LiveStage's layout features are similarly lean; although the program does support arrow-key nudging, it lacks a snap-to grid.

Implementing Interactivity

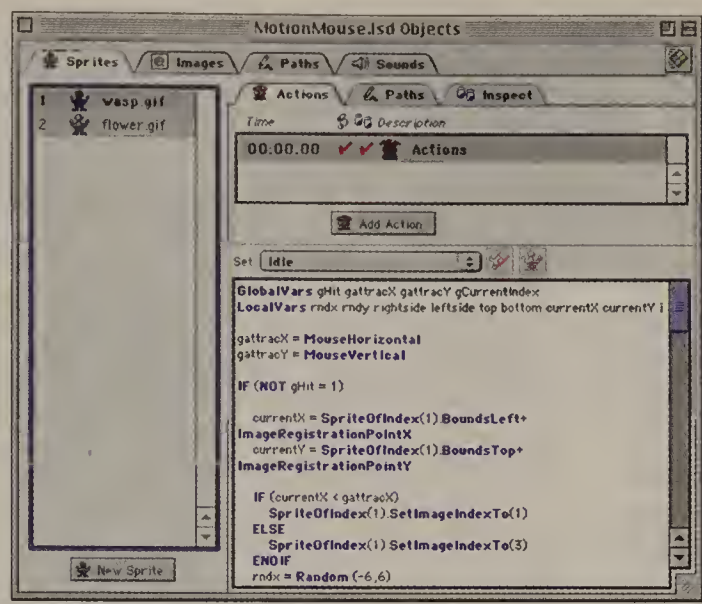
Once you've imported media elements, you can specify interactivity and animation—making images glide across the screen, creating buttons that link to Web pages, and so on.

In Electrifier Pro, you add interactivity in either the Layout or Structure mode, generally by dragging an action icon from the Modifiers palette onto the element you want to modify and then specifying the action's parameters in the Inspector palette. To have an element invert when the mouse rolls over it, for example, you drag the Set Ink action to the element and then specify the Reverse Ink and Mouse Over Begun events in the Inspector palette. If you've used the now defunct mTropolis, you'll find Electrifier Pro's approach similar although not as elegantly implemented.

Electrifier Pro's 18 actions run the gamut from changing ink modes to opening URLs to changing the pan settings of a QuickTime VR movie; the program's 21 effects range from volume adjustment to path animation to spinning, slanting, and zooming. Building a project in Electrifier Pro is a process of adding tracks, importing media into them, combining modifiers and actions, and then arranging the elements in the Structure view. But although the overall concept is fine, the execution is lacking. For example, to change some effects' parameters, you have to choose a different effect and then choose the original effect again just to access its options.

In LiveStage, you add interactivity by writing scripts in its built-in programming language, QScript. Working in LiveStage's Objects window, you specify actions (such as Mouse Enter and Mouse Click) and then attach scripts to those actions (see "Scripting QuickTime"). You can peck out scripts by hand or assemble them by dragging and dropping keywords from the QScript Reference palette.

QScript is a rich language, complete with control structures (such as **if...then** and **while**); local and global variables; arrays; and actions that control the playback of various types of QuickTime tracks, including VR, music, sound, and video tracks. It gives you far more control over interactivity than do Electrifier Pro and Macromedia Flash. Indeed, one of the demonstration files that accompany LiveStage is a simple Space Invaders–style video game. When you realize that this game is a QuickTime movie that can be embedded in virtually any application, the power of QuickTime as an interactive platform really hits home.



Scripting QuickTime In LiveStage, you add interactivity by writing scripts in QScript, a sample of which is shown here.

But QScript *is* a programming language, and you'll need time to master it. Unfortunately, its syntax bears little resemblance to that of other popular languages, such as Macromedia Director's Lingo. And Director 7 comes with a large library of canned scripts that handle common tasks; LiveStage doesn't.

Previewing and Publishing

Both programs let you preview your efforts before creating the final movie. In Electrifier Pro, clicking on the document window's Preview tab causes the project to run. It's fast and convenient.

In LiveStage, you have to compile your project. While the project is compiling, LiveStage checks the scripts for errors and prepares a preview. The process doesn't take long—five seconds or so, depending on the project—but it makes troubleshooting and debugging more cumbersome.

When you've finished a project in either Electrifier Pro or LiveStage, you can output it as a stand-alone QuickTime movie. Electrifier Pro also lets you export a project's animation as an animated GIF file and its audio as a WAV or AIFF file.

Even though both Electrifier Pro and LiveStage are naturals for Web-destined projects, neither can create an HTML file containing the **<embed>** tags necessary to include your movie in a Web page. Both programs could use features similar to those of Macromedia's After-Shock, which accompanies Director and creates the HTML necessary to embed Shockwave projects.

Macworld's Buying Advice

Electrifier Pro is the better program for projects that involve enhancing existing QuickTime content and for anyone averse to scripting. (Version 2.0, due out by the time you read this, will support the streaming features of Apple's QuickTime 4.) LiveStage is the better choice for applications involving animation and requiring the sophisticated branching capabilities of QScript. Both prove that creating a powerful authoring environment involves more than simply combining interactivity features with a layout screen; it also takes a user interface that makes authoring approachable and even enjoyable. You'll find this attention to detail in the latest versions of Macromedia Director and Flash. When Electrifier and Totally Hip start sweating those interface details, QuickTime's potential as a platform for interactivity will finally be realized.—JIM HEID

Electrifier Pro 1.0

RATING: ♦♦♦½ **PROS:** Drag-and-drop authoring; versatile media support. **CONS:** Interface has rough edges; poor documentation. **COMPANY:** Electrifier (919/968-0701, www.electrifier.com). **LIST PRICE:** $595.

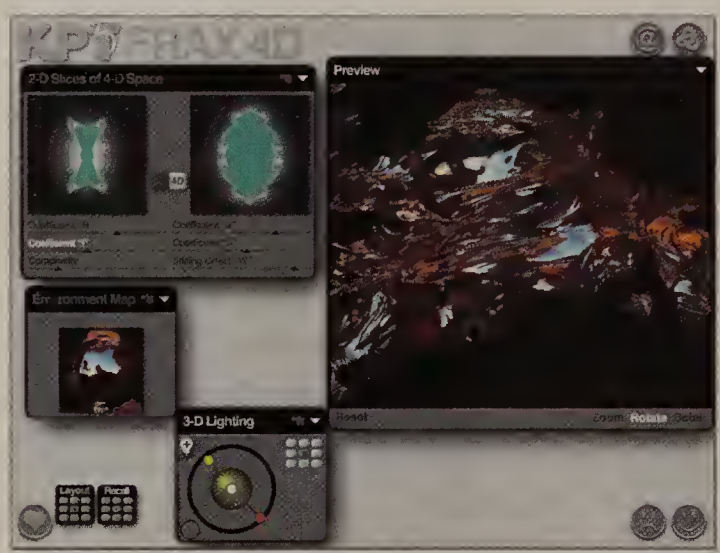
LiveStage 1.0.1

RATING: ♦♦♦ **PROS:** Powerful scripting language. **CONS:** Interface flaws; poor documentation; can't import QuickTime movies; heavy reliance on scripting. **COMPANY:** Totally Hip Software (604/685-6525, www.totallyhip.com). **LIST PRICE:** $200.

Kai's Power Tools 5

ADOBE PHOTOSHOP PLUG-IN PACKAGE IS A MIXED BAG

WITHIN THE WORLD OF Adobe Photoshop special effects, Kai's Power Tools (KPT) has long been a leader in the realm of "golly-gee-wow" filters, evoking both admiration and ire from legions of users. The latest incarnation from MetaCreations, KPT 5.0, offers a few new standout filters, such as the ShapeShifter, but overall adds less to the mix than did previous upgrades. Fans of earlier versions will likely find at least a few gadgets that bring smiles to their faces, but designers who had little use for KPT in the past will be even less likely to convert.



Frax to the Max If you want to make strange 3-D shapes that are fun to play with, Frax4D is your ticket.

A Pixel Piñata

KPT 5.0 does not update the filters of the previous version, KPT 3.0. Instead, you get a Macintosh/Windows CD-ROM with ten new plug-ins plus the full set of KPT 3.0 filters.

Some of the new plug-ins build on core Photoshop functionality—and provide significant speed enhancements—but with unusual omissions. For example, KPT Blurrrr contains a fast blurring algorithm (calculated with greater precision than in Photoshop's built-in equivalents) and offers a wide range of blur distortions, such as a Spiral Blur, which makes an image look as if it's being sucked into a vortex, and Gaussian Wave blur, which adds a cool sparkle effect. However, the Zoom Blur filter, while much speedier than Photoshop's Zoom Blur, doesn't let you reposition the blur's center point, a frustrating and seemingly arbitrary limitation. On the other hand, you can change the center point in the new RadWarp filter, which produces fish-eye lens effects.

The ShapeShifter plug-in, sure to become a favorite with Web designers, makes it easy to produce beveled, textured buttons and logos. Rendered environment maps and lighting controls turn any selection into a dimensional object, with basic shading and shadows.

Another useful addition, KPT Smoothie, is designed to smooth edges and remove noise in poorly scanned images, especially line art. However, you cannot preview the processed image against any background layers, a limitation that partially defeats the purpose of edge smoothing.

You can get the same effect by using Photoshop's blur filters and Levels command; this is more tedious but allows you to evaluate the results while viewing all layers in the image.

Wild Fractals

Fans of previous KPT versions are sure to love the FraxExplorer, a fractal generator that includes new fractal *styles*, as well as tools for manipulating color maps in real time. The filter's "wow" factor is substantial, but fractals have already been overused by designers and thus have become visual clichés. On the other hand, the Noize plug-in is a great starting point for creating neat textures, nicely complementing Photoshop's simplistic noise filters.

Our personal favorite, Frax4D, lets you create bizarre—and gorgeous—3-D fractal shapes, which you have to see to comprehend. Small changes to the controls yield wild, often unpredictable shapes in the preview area, which updates quickly and can be rotated almost in real time (see "Frax to the Max").

The resulting imagery may not be especially useful—it would be great if the 3-D shapes could be saved as DXF files—but the filter is fun enough to be almost addictive.

The other new filters in the package are KPT FiberOptix, which creates glowing strand effects; KPT Orb-It, which generates a series of spheres; and KPT FraxFlame, which produces a variety of sweeping lighting effects.

Interface Alert

As in previous versions, the KPT 5 filters take over your entire display, replacing the familiar Photoshop workspace. Professional Photoshop artists may object to KPT's interface dictatorship, and the time needed to load the screen elements can grate on your nerves. However, more playful hobbyists and visual artists might enjoy the experience.

We liked the lighting interface found in some of the filters, and the real-time bevel previews in KPT ShapeShifter are great for designing type effects.

KPT's printed documentation consists of a single quick-reference card, with the user guide implemented as a series of Adobe Acrobat PDF files on the CD-ROM. You can launch Acrobat Reader from within KPT, but the appropriate PDF file for the current filter does not automatically load; instead, you must open the file after running Acrobat Reader.

The documentation, while not bad, could use a greater number of examples. However, this is partially offset by the wealth of presets for the filters, which give you a decent starting point for your own experimentation.

Macworld's Buying Advice

You already know if you want Kai's Power Tools 5. Photoshop artists who didn't care before won't care now. Fans of previous versions will instantly love the new toys, and it's a no-brainer if you don't already have version 3.0. KPT 5 could be more filling, but it tastes great if you like colorful candy.—DAVID BIEDNY

RATING: ♦♦♦½ **PROS:** Some unique new effects; fast blurring tools; effortless generation of unusual images. **CONS:** Some effects of questionable usefulness; not enough overall variety for the price. **COMPANY:** MetaCreations (805/566-6200, www.metacreations.com). **LIST PRICE:** $199.

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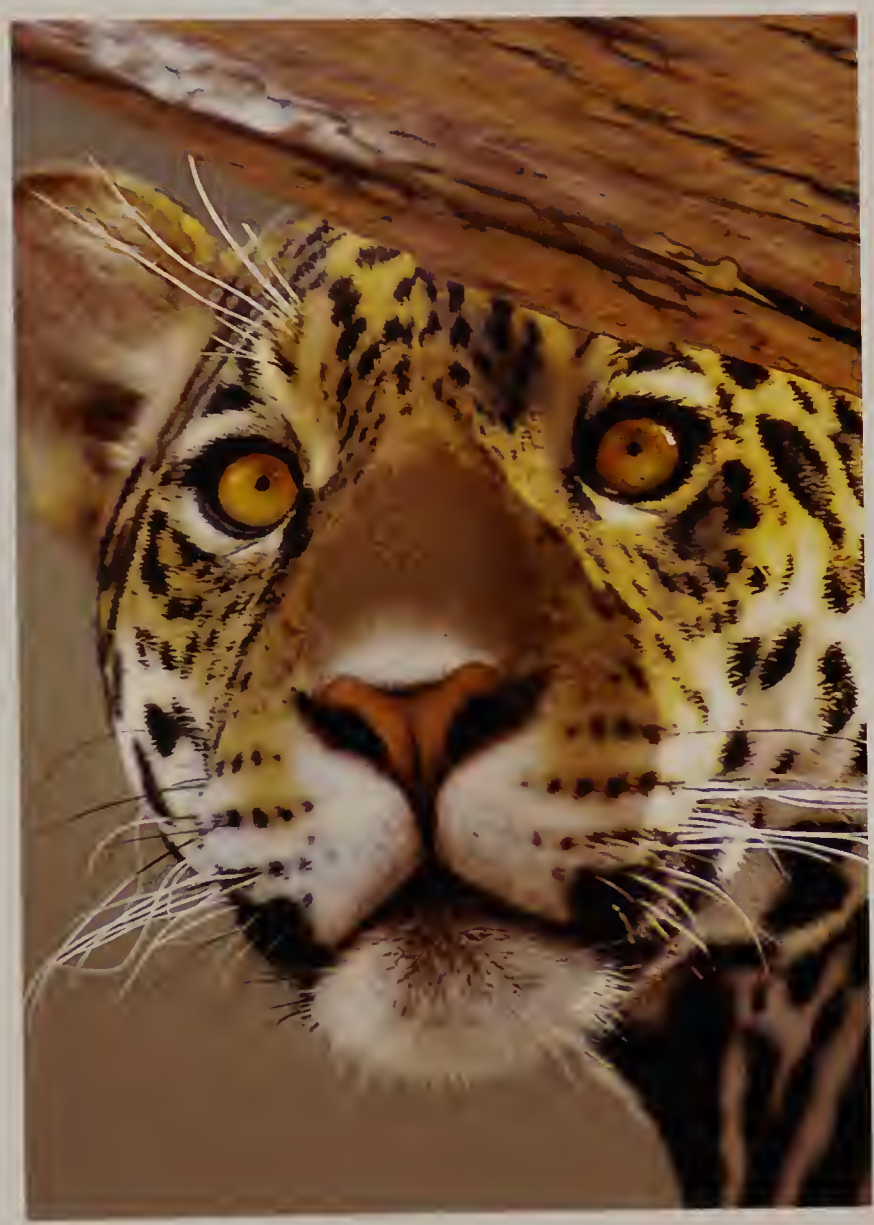

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Kai's Photo Soap 2

IMAGE EDITOR IMPROVED BUT STILL FLAWED

NOWADAYS, YOU CAN'T THROW a rock in a computer store without hitting an inexpensive flatbed scanner or digital camera. If you've been throwing such rocks and are new to digital imaging, Kai's Photo Soap 2 might be just what you need in order to perform simple edits and color corrections and to get your images printed or posted on the Web. A vast improvement over Soap 1, version 2 includes new retouching and painting features and powerful Website–creation tools. But although the program's interface is much improved, it is still needlessly obtuse and difficult to use.

Shamefaced

Although Soap 2 is targeted at less experienced users, you need a beefy Mac to comfortably use it. The normal installation eats up 120MB of storage, and the program's graphics-heavy interface demands at least a fast 603e CPU.

Soap 2 has abandoned its predecessor's "rooms" metaphor in favor of a tabbed interface that lets you freely move among the cataloging, retouching, compositing, and printing facilities. Dropping the old modal approach is a great improvement, in that you're no longer confined to a particular workflow.

Unfortunately, Soap 2's interface improvements don't go far enough. The interface is aesthetically pleasing and sports some clever graphics, but like other MetaCreations programs that include the "Kai" moniker (see "Kai's Power Tools 5," elsewhere in this section), Soap is nonintuitive and difficult to use. For example, the program has separate Input and Output menus rather than a single File menu; at the very least, Soap needs some standard conventions in its menu system. Tool labels or context-sensitive help would also be nice. The manual is a necessity, but it's available only in the form of PDF files.

When you launch Soap, it presents the Organizer page, which lets you browse and arrange image thumbnails. You can import pictures from folders or directly from a scanner or digital camera.

Soap 2 lets you add searchable keywords to images, making it easy to sort and arrange files. However, we'd prefer searches that simply selected found images instead of changing their position on the desktop. We'd also like to see a flipping command and additional rotating options; currently you can rotate only 90 degrees clockwise. But the versatility and impressive speed of the Organizer make it a good tool for cataloging images.

The Organizer's most noteworthy feature is HTML export. After you've arranged your images, you can choose Export to HTML to automatically create a Web page that looks exactly like the Soap desktop.

Folks viewing the page can rearrange the thumbnails or double-click on them to see a full-size image. The pages are small and fast, but we experienced compatibility problems with older browsers.

Retouching

Soap's image-editing tools, scattered across several rooms in the initial release, are now all in one place. From the Soap 2 Clean page, you can adjust colors and paint on, clone, or retouch images. Soap 2's color-correction tools are powerful and easy to use, thanks to a "graphic equalizer"–style interface. Corrections can be applied to an entire image or brushed in selectively with a range of brush and eraser tools.

New to version 2 is the ability to use Adobe Photoshop–compatible filters. Like other effects, Photoshop filters can be brushed on, something you can't do in any other program. This is a feature we'd love to see in Photoshop itself.

Performance on the Clean page is a bit slow, because the computer reloads a copy of the image each time you add an effect. Although we were comfortable running the program on a Power Mac G3, a slower computer might not fare as well.

Soap 2 includes a compositing facility that lets you bring in multiple images to create collages. You can rotate and reposition images and adjust opacity uniformly, or selectively with brushes. Unfortunately, Soap 2 provides no transfer modes between layers.

Once you've retouched your image, you can prepare it for printing in the Output section, which is Soap's greatest strength. In addition to printing individual images, you can choose from a robust collection of album templates to package your pictures and captions. Although this sort of thing is often cheesy, Soap's albums and frames are well designed and attractive; even the most jaded graphics-head will be impressed.

Brush It In Photo Soap lets you brush in Photoshop filter effects.

Unfortunately, Soap's captioning tools are a bit of a disaster. Offering only three type sizes is bad enough, but the program's text tool doesn't automatically wrap words within a frame, forcing you to manually figure out where to place carriage returns to fit the text.

Once you've set up your album, you can print it out or export it as a Web site.

Macworld's Buying Advice

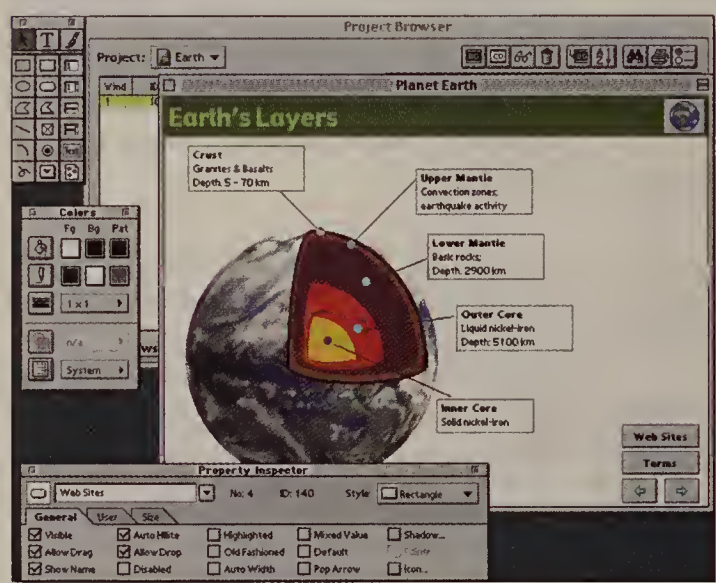
Users who want a quick and easy way of creating impressive print or Web presentations of their photos will be well served by Soap 2. However, although there is power in Soap's retouching tools, the interface continues to make them too difficult to use. We're pleased with the changes from version 1; hopefully version 3 will show equal improvement.—BEN LONG

RATING: ♦♦♦½ **PROS:** Great HTML export; can brush on Photoshop filters; speedy image cataloging. **CONS:** Interface too difficult; slow when switching tools, zooming, or applying effects; disk hog. **COMPANY:** MetaCreations (805/566-6200, www.metacreations.com). **LIST PRICE:** $49.

SuperCard 3.5

MULTIMEDIA AUTHORING SOFTWARE AT A GREAT PRICE

SUPERCARD HAS FOLLOWED A winding path, emerging more than ten years ago from Silicon Beach Software, moving to Aldus and then to Allegiant Technologies, and now settling down with IncWell Digital Media Group. Along the way, SuperCard has gone through periods of dormancy and uncertainty, but IncWell's first update brings the software up to speed with current Macintosh technologies at a price that can't be beat.



Projecting Again Authors can create content-rich multimedia interactively in SuperCard's Project Editor.

SuperCard is often described as "HyperCard done right." Like HyperCard, it uses a card-stack metaphor for organizing information. In SuperCard, cards appear in standard Mac OS windows and contain graphics, buttons, and text fields, all of which you can script to provide custom interactivity and functionality. You do your scripting in SuperTalk, an extended variation of HyperTalk, HyperCard's English-like scripting language.

Although SuperCard clearly derives from Apple's ever-aging HyperCard, don't let this lineage put you off. SuperCard has always offered integrated color capabilities, still missing from HyperCard. It supports bitmapped images and vector graphics, which it treats as full-fledged objects just like buttons and fields.

The program's forte is interactive multimedia. It supports audio, animation, and media playback in ways that are easier to script than in Macromedia Director. SuperCard projects can work like standard Mac programs, offering custom menus, palettes, and tool bars.

To this potent mix SuperCard 3.5.2 adds a handful of new features, plus complete compatibility with Mac OS 8.5 and support for key Macintosh technologies such as drag and drop, the Appearance Manager, and QuickTime's new image formats. SuperTalk can also manipulate QuickTime VR movies, recognize spoken phrases via PlainTalk Speech Recognition, and manage scripts written in languages, such as AppleScript and Frontier's UserTalk, that conform to Open Scripting Architecture (OSA).

One-Eyed Jacks

Some of SuperCard 3.5.2's enhancements are welcome and successful. SuperCard's speech recognition and QuickTime VR support worked surprisingly well, allowing us to pan a QuickTime VR movie using voice commands. Similarly, combining SuperCard's new drag-and-drop capabilities with QuickTime's extensive graphics support made it easy to create a utility that opened image files, added a copyright notice, and then exported the result to another folder as a JPEG image.

However, some of SuperCard's new features don't go far enough. The program's support for OSA languages is awkward—a real shame, since strong AppleScript capabilities would be valuable for creating utilities and prototype applications. Although you can run AppleScript-created scripts from SuperCard, you cannot use AppleScript to create or interact with SuperCard objects.

Authoring a SuperCard project has always been a modal experience: you're either authoring a project or running it. SuperCard 3.0 introduced the Project Editor, an extensive interactive editing environment within SuperCard. The Project Editor's features overlap—but don't completely replace—those of SuperEdit, a separate application that formerly served as SuperCard's primary editor. Thus, the SuperCard authoring environment has become a hybrid, with overlapping functions scattered across two separate software modules. The Project Editor window is finally resizable and supports standard text-editing key combinations, but you can edit only one script at a time. However, you can edit multiple scripts in SuperEdit. You will find extensive, mostly accurate documentation and a useful on-screen SuperTalk language reference. However, the manuals are Acrobat PDF files—more than 1,600 odd-size pages' worth—unsuitable for printing or easy on-screen use. Printed documentation isn't available.

You can play back SuperCard projects using SuperCard itself, or convert them to stand-alone runtime applications with surprisingly down-to-earth system requirements: depending on your project, even decade-old 680X0 systems may run it with aplomb.

SuperCard is also jammed with tools for Internet deployment. The program can save projects in a format suitable for use with the Roadster Web browser plug-in, which supports a substantial subset of SuperCard's functionality.

Allegiant Technologies introduced Roadster more than two years ago, and IncWell promises a forthcoming update. Unfortunately, this perpetually unfinished software is currently the only option for running SuperCard projects on the Windows platform.

Macworld's Buying Advice

SuperCard's animation features can't compete with Macromedia Director's, but the software is well suited to producing multimedia projects that deliver complex interactivity and content management—all with the standard Macintosh look-and-feel. Even better, SuperCard 3.5.2 is now available for less than half the price its previous owners charged. For experienced scripters and authors, that's too good a deal to pass up.—GEOFF DUNCAN

RATING: ♦♦♦♦ **PROS:** Mature, reliable, flexible multimedia authoring at a bargain price. **CONS:** Inaccessible documentation; poor printing; no Windows player. **COMPANY:** IncWell Digital Media Group (530/647-8541, www.incwell.com). **LIST PRICE:** $144.95.

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Freeway 2.0

WEB-SITE EDITOR HITS CRUISING SPEED

THE ORIGINAL RELEASE OF SoftPress Systems' Freeway showed promise (see *Reviews*, February 1998), but it lacked many common features found in competing professional-level products, such as GoLive CyberStudio and Macromedia Dreamweaver. Freeway 1.0's main strength was its close adherence to the QuarkXPress interface, making it easy for desktop publishers to transfer their layout and design skills to the Web. Freeway 2.0 maintains that easy familiarity but adds new features that cover most of the bases the first version missed.

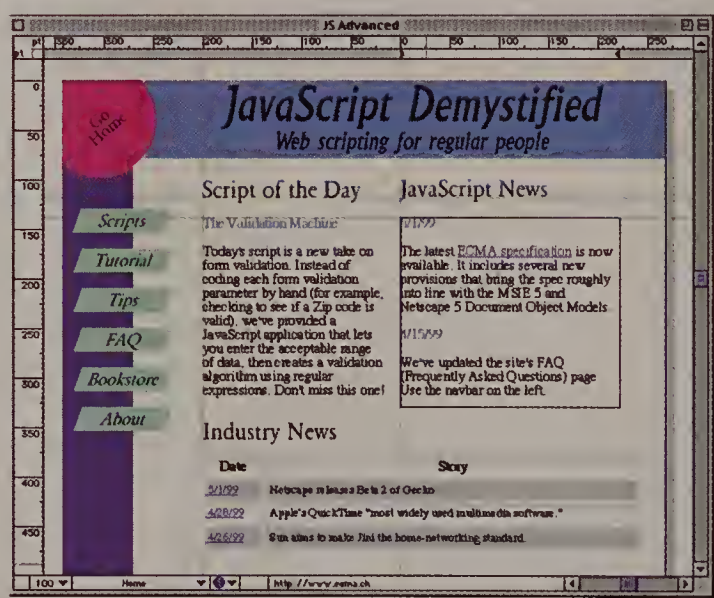
This Road Looks Familiar

As in the previous version, you start by creating master pages containing elements shared across your site's pages, such as banners and navigation bars. As with QuarkXPress, you draw boxes that act as containers for text, graphics, and multimedia; the boxes can snap to guides or grids for easy alignment of page elements. An HTML Rectangle tool lets you create boxes to hold body text, which you import by either opening the text file with the Import command or dragging and dropping text into the Freeway document from the Finder or another application. Other tools let you link and unlink text flows from one text box to another, and Inspector palettes give you detailed control over page, text, and graphic elements.

One big concern of designers is control over typography, and Freeway 2.0 does an excellent job of making sure the type you see is the same type your site's visitor sees. As in the previous version, you can convert styled, editable text into a GIF or JPEG that's automatically antialiased against the page's background color. New to the program is support for Cascading Style Sheets (CSS), which give you real typographic control over HTML text. A unique compatibility mode produces pages that use HTML 3.2 markup tags as much as possible, reserving CSS tags for those styles that absolutely require it; the result is pages that work better in older browsers. (Freeway creates internal style sheets for individual pages, but not external style sheets for whole sites.)

Filling In the Potholes

Considering that the last version of Freeway didn't even support tables, Freeway 2.0 has gone a long way down the road toward supporting the latest Web standards. Table support has arrived, and it's quite good; you can even select and format the contents of noncontiguous cells. The program now supports frames, and you can convert existing pages into frame sets. Fixing an annoying omission in the first version, Freeway now lets you use text, not just graphics, as anchors, and you can wrap HTML text around in-line items such as images and tables.



Not a One-Trick Pony All the antialiased text and shapes on this Web page were created in Freeway 2.0.

As with the previous release, you can position objects precisely using invisible tables, but you now also have the option of using CSS layers. You can only move layers in a straight line; if you need greater control over page elements (using timelines and keyframes), you're better off with Dreamweaver or CyberStudio.

Freeway 2.0 implements JavaScript through Actions, libraries of code routines you select from a menu. The program comes with 15 Actions, including button rollovers, layer movement, and browser redirection. Unique to Freeway are Slave Actions, which activate multiple Actions from a single trigger. For example, you can have a single rollover change several images. The manual includes a tutorial for writing your own Actions, and you can download more Actions from the SoftPress Web site.

The Freeway 2.0 CD-ROM offers spelling dictionaries for English, Spanish, French, German, Italian, and other languages, along with the 4.0 versions of Netscape Navigator, Netscape Communicator, and Microsoft Internet Explorer.

No Tinkering under the Hood

Because SoftPress has added HTML import to Freeway's repertoire, you can now import single pages or entire folders as sites. Unfortunately, the import facility isn't as accurate as it needs to be; when we imported a site originally created in CyberStudio (one that looked fine in browsers), several pages required significant touch-up to correct poor text alignment and spacing.

If you like the smell of raw HTML in the morning, Freeway may disappoint you—it lacks an HTML mode where you can see and tweak the code. You can add some extra tags manually to the head or body sections via a dialog box, but that's no substitute for a real HTML editor. To be fair, SoftPress aims specifically at those designers who don't want to delve into the code behind the pages any more than they would want to tweak the PostScript output from a desktop publishing program.

Macworld's Buying Advice

If all you want to do is create Web pages and never deal with code, Freeway 2.0 is a worthy choice—especially if you're familiar with QuarkXPress. And if you bought a previous version of Freeway, the upgrade is free. Now that it supports tables, frames, JavaScript, and CSS, Freeway rivals CyberStudio and Dreamweaver in visual layout capabilities, though it can't match its competitors' HTML editing modes and superior site-management tools. After a slow start, Freeway is up to speed.—TOM NEGRINO

RATING: ♦♦♦½ **PROS:** Easy transition to the Web for QuarkXPress users; good support for CSS and JavaScript. **CONS:** Inaccurate import of existing sites; no access to underlying HTML. **COMPANY:** SoftPress Systems (415/331-4820, www.softpress.com). **LIST PRICE:** $299.

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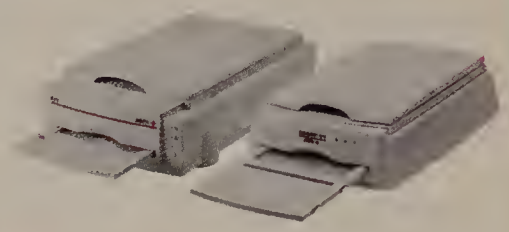

TWINPLATE

DuoScan & DuoScan T1200

DuoScan (left): TwinPlate technology, 1000(h) x 2000(v) dpi resolution, up to 9.5" x 12". DuoScan T1200 (right): same, except 600(h) x 1200(v) dpi and optional 10-page automatic document feeder.

TWINPLATE

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DuoScan T2500 & DuoScan T2000 XL

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QuarkXTensions

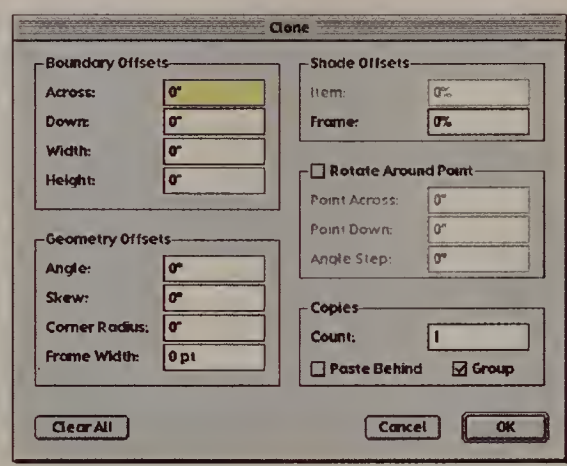
FIVE USEFUL—BUT COSTLY—ADD-ONS FOR QUARKXPRESS

QUARKXTENSIONS CAN BE great for enhancing your use of QuarkXPress, but sometimes you have to wonder if they're worth the hundreds of dollars you need to spend beyond the price of the original package. The five QuarkXTensions reviewed here are useful productivity aids, but with one exception, they may be too expensive for most print designers.

Gluon's $99 Cloner and Badia Software's $40 Duplica—the one reasonably priced product in this roundup—both make it easier to copy items within QuarkXPress. Cloner lets you copy items from one document to another existing document, a new document, or a different page range within the same document. Though it has a simple, self-explanatory interface, most QuarkXPress users will find $99 too much to pay for such a one-trick pony.

Duplica, a more sophisticated product, lets you use Quark's built-in Duplicate, Step and Repeat, Copy, and Paste functions to copy almost any text, box, or line attribute to another location. For example, if a text block has a 1.5-point keyline, 50 percent blue background, and left text alignment, you can copy just those attributes to a different text block. As you copy items, you can rotate, reverse, or manipulate them in other ways. The intuitive design of this XTension, and its thorough and clear documentation, make it a worthwhile addition for many QuarkXPress users.

If you want to bring your QuarkXPress documents into other programs,



Flexible Copies Badia's Duplica lets you modify item attributes as you copy them.

Gluon's $189 XPressImage lets you convert a page or selection into TIFF, EPS, JPEG, GIF, or PDF files. However, we had problems with PDF export: when we used the default settings, the PDF document's text was bitmapped, with jagged edges, and image quality was poor. Considering the $189 price tag, this QuarkXTension is useful only if you must frequently convert your QuarkXPress pages into graphics.

It's even harder to justify the $225 price tag for Gluon's QC, which inspects your QuarkXPress documents for a wide range of common problems, including ones related to fonts, styles, and image formats. Unlike preflight programs, which check documents only after they're ready for transmission to a service bureau, QC inspects your QuarkXPress files on the fly as you're creating them. It's practical and easy to use, but even after continual on-the-fly analysis, you may still want to run the document through a preflight program, because QC does not collect all the project elements together for output.

For those who want to rescue bad QuarkXPress files, Markztools III is a $199 utility suite that covers the most common corruption problems in the QuarkXPress program. Convert Document lets you open and convert higher-version documents—such as those created in QuarkXPress 4.0—from within an older version of the software. Salvage does a good job of opening damaged QuarkXPress files, including those that generate "Bad File Format" or "Unexpected End of File" errors when you try to open them. Scavenge Text is a last resort for bad files, allowing you to extract text if you can't open the file itself. The Verification module ensures the integrity of your document with each incremental save. Save to Temporary File, a handy backup utility, creates a temporary copy of your document in a designated folder each time you save the original. Gray Previews helps keep file sizes small by converting full-color previews into gray-scale images. Finally, Version Keeper adds two pieces of information to the title bar: the current document version number and the amount of memory available to QuarkXPress.

Overall, Markztools III is simple and well conceived. It can be a godsend if you have damaged files, but like most of the other QuarkXTensions covered here, it's costly, given its narrow range of functions.

Macworld's Buying Advice

Each of these QuarkXTensions is useful, and they all work as advertised. But any add-on that costs more than $100 should give a buyer pause. Is avoiding a few extra clicks of the mouse worth *that* much? The answer depends on your own specific priorities.—ANDREW SHALAT

Tools for QuarkXPress Users

Company	Product	Mouse Rating	List Price	Contact	Pros	Cons
Badia Software	Duplica	🖱🖱🖱🖱	$40	www.badiasoftware.com	Useful interface.	None significant.
Gluon	Cloner	🖱🖱½	$99	212/343-1755, www.gluon.com	Simple interface; fast.	Expensive.
	QC	🖱🖱🖱	$225	212/343-1755, www.gluon.com	Comprehensive quality-control features; easy interface.	Expensive.
	XPressImage	🖱🖱	$189	212/343-1755, www.gluon.com	Innovative idea.	PDF output problems; RAM hog; expensive.
Markzware Software	Markztools III	🖱🖱🖱½	$199	949/756-5008, www.markzware.com	Powerful, comprehensive file recovery.	Expensive.

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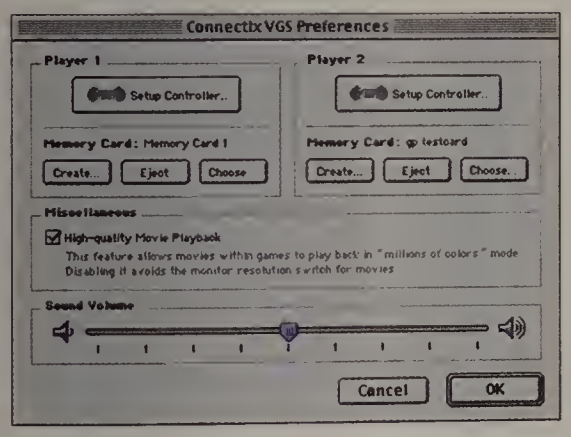
Connectix Virtual Game Station

PLAYSTATION GAMES COME TO THE MAC

THE NUMBER OF MAC GAMES IS growing, but it's still relatively small compared to the wealth of games available for the PC. Connectix's Virtual Game Station (VGS) 1.1 opens up the vast library of Sony PlayStation titles to G3 Macs—including the iMac—using impressive technology that emulates a PlayStation's hardware, including its MIPS RISC processor. Be prepared for occasionally sluggish game response, though; this is emulation, after all.

When you insert a PlayStation disc into your Mac, VGS launches automatically. Thanks to the G3s' 24× CD-ROM drives, games load faster under VGS than they do on the PlayStation's 2× drive.

In VGS's minimalist user interface, the main window lets you create and select virtual memory cards—which, like real PlayStation memory cards, you use for saving game states. It is also where you configure input devices and set the volume for VGS, eliminating the need for trips to the Monitors control panel.



Set Up Your PlayStation Configuring Virtual Game Station is as easy as setting up the input device (keyboard or game pad) and specifying the games' volume.

Although you can use a keyboard as an input device, PlayStation games are clearly designed with a game pad in mind. We found that the Gravis Gamepad Pro USB, with button placement identical to the PlayStation controller's, made the VGS experience much more like using a PlayStation than like using a computer (although we missed the PlayStation's analog game pad in some games).

The downside of emulation is always that it's, well, emulation; it's never as good as the real thing. VGS 1.1 is no exception. Connectix admits that it has tested VGS only with the most popular games of the past year or two, so it's no surprise that some games work better than others. Although our test games were generally quite playable, we did hit some snags. Playing Konami's Metal Gear Solid on a G3/300, we found the response slow during intense action, compared to playing it on a real PlayStation. We had similar experiences with Sony's Crash Bandicoot 2 on an iMac 233MHz.

It was easy to overlook the occasional sound dropout in Sony's Spyro the Dragon and minor graphical glitch in Psygnosis's G-Police, since both games played well otherwise. Shiny's MDK was the only game in our test suite that wouldn't play at all; it consistently got stuck shortly after starting.

Connectix stresses that VGS runs only on Power Mac G3's; it doesn't support older machines with upgrade cards. VGS requires a fast system bus, as well as one of the CD-ROM drives in recent Apple systems so it can verify that the discs it plays are not pirated copies. We tried running VGS on a Umax S900 outfitted with a Newer Technology G3 upgrade card, and CD-ROM–compatibility issues foiled multiple attempts to load a game. Some accelerator vendors claim their cards are compatible with VGS, but don't be surprised if the performance isn't what you expect.

Macworld's Buying Advice

Connectix's Virtual Game Station is an impressive piece of technology that runs most PlayStation games well, even though it has a few compatibility quirks. The delayed response we saw can make games that require split-second timing much harder to play. Although it's unlikely that VGS will supplant real PlayStations, Mac owners who already have PlayStations are almost certain to want it.—STEPHAN SOMOGYI

RATING: ♦♦♦1/2 **PROS:** Handles most popular games well; game sound configurable within VGS. **CONS:** Incompatible with some less-popular games; game response sometimes feels sluggish; recommended for use only on Apple G3 hardware. **COMPANY:** Connectix (650/571-5100, www.connectix.com). **COMPANY'S ESTIMATED PRICE:** $50.

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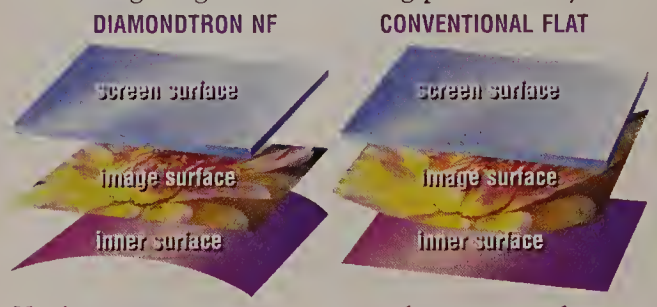

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8× CD Recorders

SPEEDY CD-RS ARE HERE, BUT MEDIA LAG

A NEW GENERATION OF CD recorders is here: the 4× and 6× recorders that seemed so fast six months ago have given way to 8× devices that can burn a recordable CD in less than nine minutes. The first 8× recorders to hit the Mac market, Smart and Friendly's CD Rocket and APS Technologies' APS CD-R 8×20, both deliver on the promise of faster writing speeds at prices comparable to what you recently would have paid for a 4× recorder. However, given the shortage of high-speed recordable media and some minor reliability problems with the new drives, you may be better off sticking with a slower mechanism—at least for now.

SUZANNE ROADY

The APS Technologies APS CD-R 8×20 (top) and the Smart and Friendly CD Rocket (bottom).

Tweedledum and Tweedledee

The APS drive features a more compact enclosure and a neat automatic-termination feature, but it doesn't ship with a SCSI cable. The Smart and Friendly drive costs an extra $200, consumes more desk space, and requires manual termination but includes a SCSI cable and a terminator. Otherwise the drives are identical: they use the same 8×20 mechanism from Sanyo and include the same CD-recording software, Adaptec Toast 3.5.

The Sanyo mechanism writes recordable CDs at up to 8× and reads all common CD formats at up to 20×. But to write a CD at 8×, you need media certified for the higher speed—and at the moment only a handful of vendors are offering 8×-certified discs (see "Media Limited for 8× CD-Rs," *News*, April 1999). You can buy certified discs directly from drive vendors—at $20 per ten-pack—but finding them at a local outlet may be a challenge.

A 20× mechanism for reading CDs sounds impressive, but you need a fast SCSI connection to take advantage of that speed. On a Power Mac 7300 with a standard SCSI port, the drives were slower than the internal 8× CD-ROM drive. The drives also mysteriously failed every 15th disc or so; error messages indicated problems with the SCSI connection or the servo-tracking mechanism. And although the recorders feature a 2MB buffer, you'll still need a reasonably fast hard disk to feed them a continuous data stream.

The Toast software is easy to use and lets you write discs in a wide range of CD formats. A companion program, Toast Audio Extractor, lets you copy tracks from an audio CD to your hard drive. However, Toast automatically inserts a 2ms pause between audio tracks. If you're recording an album on which the music doesn't pause, this causes what sounds like a skip between songs.

Macworld's Buying Advice

Both drives sell for under $700—a far cry from the CD Rocket's original $1,090 price tag when the drive was released last year for the PC. But that's still about $200 to $400 more than what you'd pay for a 4× drive. If writing a CD in 9 minutes rather than 18 makes a big difference to you—and you're willing to put up with a temporarily limited media supply—then consider the more reasonably priced APS drive.—STEPHEN BEALE

APS CD-R 8×20

RATING: ♦♦♦ **PROS:** Fast CD writer; automatic termination. **CONS:** Limited media availability; minor reliability problems; no SCSI cable in box. **COMPANY:** APS Technologies (816/483-1600, www.apstech.com). **LIST PRICE:** $490.

CD Rocket

RATING: ♦♦♦ **PROS:** Fast CD writer. **CONS:** Limited media availability; minor reliability problems; larger footprint than competing model. **COMPANY:** Smart and Friendly (818/772-8001, www.smartandfriendly.com). **LIST PRICE:** $699.

GUTS

GLORY

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GRAPHICS BY ATI rage 128

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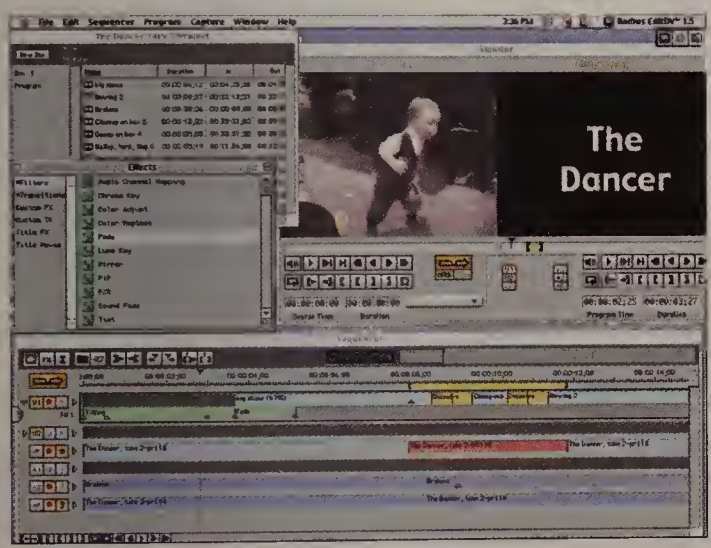
EditDV 1.5

AMAZING BUT CHALLENGING DIGITAL-VIDEO EDITOR

DIGITAL ORIGIN, FORMERLY Radius, was among the first companies to capitalize on the thrilling possibilities of digital video (DV). Equipped with the company's MotoDV FireWire card and a digital camcorder (available for under $900), your Macintosh can duplicate the functions of a video-editing workstation that would have cost $20,000 in 1995. Digital Origin's newly updated EditDV is an Adobe Premiere–like program for assembling DV clips into a finished movie. Like any newborn, this baby has plenty of messy moments, but you can easily see how attractive it might be when it grows up.



Abandon Hope, Premiere Users EditDV 1.5 bears little resemblance to Premiere's drag-friendly interface.

Although they're digital, DV camcorders still record onto tapes. But as the data flows into your Mac (and out again after editing), there's no loss of quality, no matter how many times you shuttle footage back and forth. The finished movies look stunning, always full-screen and 30 frames per second, with none of the shrunken, washed-out look of analog-captured QuickTime movies.

The beauty of EditDV 1.5 is that it puts the capturing and editing functions in a single program, but reaching video nirvana is still a mammoth project. You need a huge, fast hard drive (3.6MB per each second of video), 80MB of RAM, a TV, and a Digital Origin FireWire card (oddly enough, EditDV doesn't yet work with the blue G3s' built-in FireWire).

Once everything is connected, you can control your camcorder (play, rewind, and so on) from your Mac's keyboard. You flag certain taped scenes as component clips for your movie; unattended, EditDV then turns all such segments into DV clips on your hard drive.

Now you're ready to make your movie. You can apply EditDV's astounding power—filters, transitions, chroma key effects, and so on—with impressive precision. The text animator runs rings around Premiere's, and you can easily change filter, title, and effects settings over time using keyframes.

Unfortunately, you reach all these features via an interface that's modeled after Avid's professional editing systems; if you're accustomed to Premiere, EditDV will turn your brain to mush. The main problem is that EditDV often ignores the Mac's visual orientation. For example, the timeline window shows only the names of your clips, not thumbnails, and you can't adjust a clip's length by dragging its edges. Transitions are similarly frustrating. You can't move or stretch a transition clip by dragging; you must adjust transitions numerically.

The most maddening aspect of EditDV, however, is learning it. There's no online help, or even balloon help, in a complex interface cluttered with unlabeled icons; the manual is a disaster; and Digital Origin's help line is a toll call, frequently busy, and staffed by sometimes underinformed agents.

Macworld's Buying Advice

If you're simply hoping to make the occasional video with your DV camcorder, be warned: EditDV is infuriating to learn and decidedly antivisual. But if DV editing is your career, and user-friendliness isn't your main concern, struggling to master EditDV will reward you with power and efficiency that leave Premiere in the dust.—DAVID POGUE

RATING: ♦♦♦½ **PROS:** Brilliant integration of digital video and FireWire; some functions superbly designed. **CONS:** Excruciatingly difficult to learn; no online help; can't drag to edit clips or transitions. **COMPANY:** Digital Origin (650/404-6000, www.digitalorigin.com). **LIST PRICE:** $899 ($499 direct); with FireWire card, $999.

GUTS

GLORY

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iMac 266MHz

APPLE ENHANCES CONSUMER MACHINE

DON'T LET THE FRUITY FLAVORS fool you: Apple's latest iMacs offer more than just a new color scheme. Sure, the hot-selling consumer Macs are now available in strawberry, blueberry, grape, lime, and tangerine. But they also sport a faster processor, a larger hard drive, and a smaller price tag than the original iMac. There are no breakthrough technologies here, and the iMac still suffers from limited expandability and an unergonomic mouse. Nevertheless, Apple has taken the most popular computer of 1998 and made it even more attractive for homes and schools.

The original, Bondi blue iMacs sold for $1,299 with a 233MHz G3 processor and a 4GB hard drive. The new, $1,199 iMacs feature a 266MHz G3 and a 6GB drive. Apple has also eliminated the iMac's IrDA port and the undocumented mezzanine port, but otherwise the new model is nearly identical to the old ones. It comes with a built-in 15-inch, 1,024-by-768-pixel display; 32MB of RAM; a 24× CD-ROM drive; 10/100BaseT Ethernet; a 56-Kbps modem; an ATI Rage Pro graphics accelerator (with 6MB of SGRAM); and two USB ports. (The latest 233MHz iMac included a Rage Pro; the original 233MHz iMac used the slower Rage II.)

Macworld Lab testing found that the new iMac delivered predictable performance: a little faster across the board than the original iMac, but not as speedy as our 300MHz reference system (see the benchmark in the feature "Your Perfect Mac," elsewhere in this issue).

Aside from the extra speed, the new iMac has the same strengths and weaknesses as the old one. On the plus side it's easy to use, features a striking industrial design, and offers lots of computing power for the money. The new iMac also benefits from the wider availability of USB peripherals, which were somewhat scarce when the original model debuted.

But most of the commonly heard complaints about the original iMac also apply. The new iMac features the same hard-to-handle mouse, and there's no built-in removable storage; no PCI slots; and no serial, SCSI, or FireWire connections. The new iMac is even less expandable than the original, which included the undocumented mezzanine port on the flip side of the motherboard. Apple made it clear to developers that this port was off-limits—you can void the iMac warranty by using it—but at least two companies, Formac and Micro Conversions, have announced boards that plug into the slot. Still, you can't blame Apple for dropping a port that it never intended for third-party use.

ARNOLD TIOSEJO

Macworld's Buying Advice The new iMac builds on the success of the old one with faster performance, a lower price tag, and, yes, a choice of five colors. It's an affordable entry into the next generation of Mac computing.—STEPHEN BEALE

RATING: ♦♦♦♦ **PROS:** Great value; groundbreaking design; solid performance. **CONS:** Few expansion options; hard-to-handle mouse. **COMPANY:** Apple Computer (408/996-1010, www.apple.com). **LIST PRICE:** $1,199.

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Apple Studio Display

MONITOR MIMICS NEW G3 DESIGN

ARNOLD TIOSEJO

THE FIRST THING YOU NOTICE about Apple's latest 17-inch monitor is the look: it sports the same curvy, translucent industrial design seen in the new G3 Power Macs. But don't let the pretty facade fool you. The monitor offers top-notch display quality at a decent —although not rock-bottom—price.

The 17-inch Apple Studio Display is based on Mitsubishi's Diamondtron aperture-grille CRT, which features a 0.25mm dot pitch. Aperture-grille tubes typically offer sharper image quality than shadow-mask CRTs, and this model is no exception. Screen quality is excellent, with crisp text and great color rendition.

With a 16-inch viewable area, the monitor supports resolutions of up to 1,600 by 1,200 pixels (although it's best suited for 1,024-by-768-pixel display). It offers a relatively modest 60Hz refresh rate at the maximum resolution, but you can boost this to 85Hz at the default resolution to avoid flicker. Push-button controls let you set brightness and contrast; they also allow you to access the on-screen menu system to set color temperature, horizontal and vertical positioning, and other options.

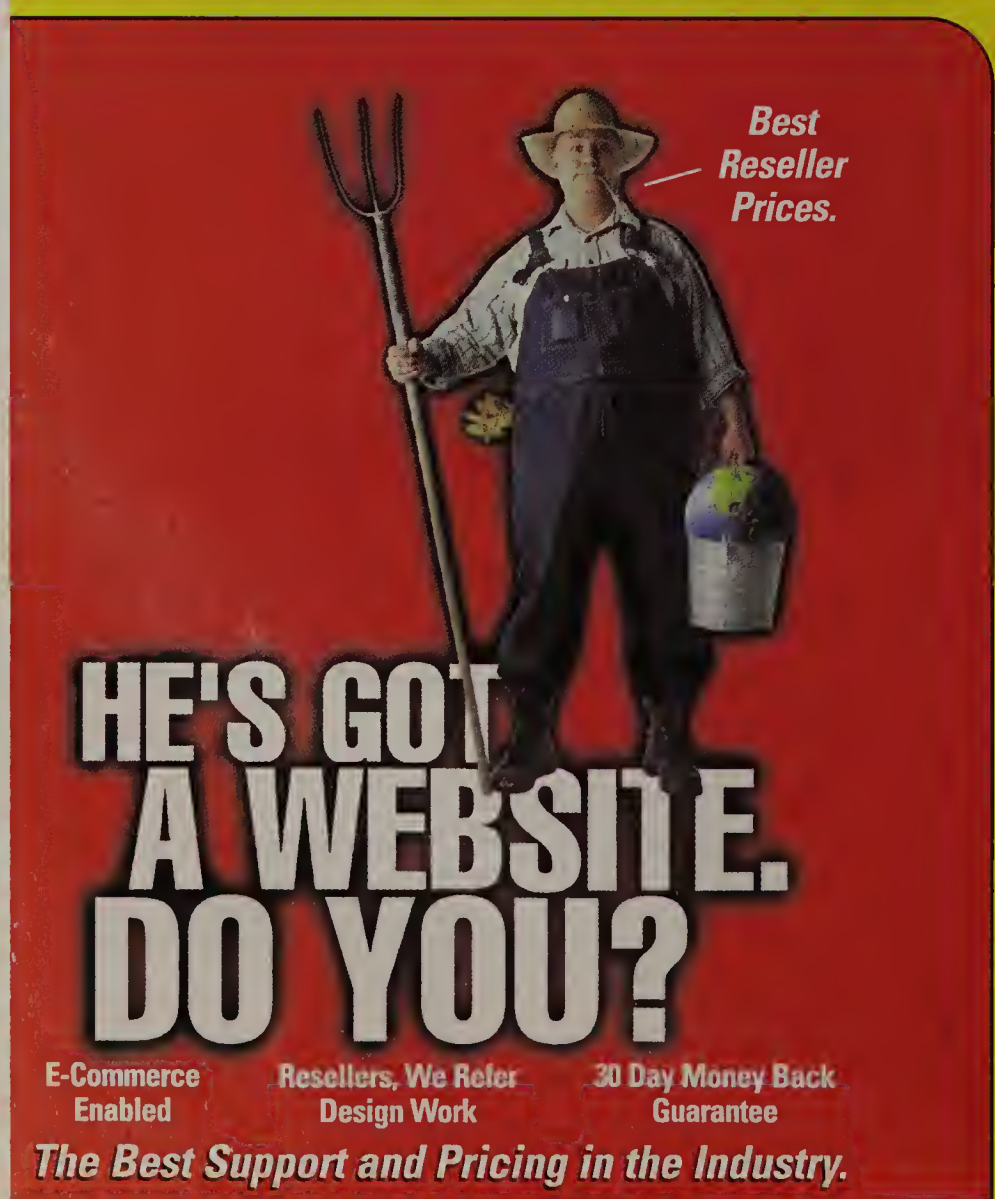
The monitor—which at first glance resembles a blueberry iMac—is clearly designed as a companion to the new G3 systems. In addition to sharing their color scheme, it features a broad, three-legged tilt-and-swivel stand that can't sit comfortably on Apple's older desktop Macs.

Apple says that it has certified the monitor to work only with its Power Mac G3 systems—both the original models and the new blue-and-white designs. However, because the 17-inch Studio Display is a multisynchronous monitor with a VGA connection, you should be able to use it with any Power Mac model as long as you have a Mac-to-VGA adapter. For example, Macworld Lab was able to use the monitor with a Power Mac 9500 equipped with iXMicro's Ultimate Rez graphics card.

This 17-inch CRT is one of three new monitors Apple is selling under the Apple Studio Display brand, the others being a 15-inch LCD and a 21-inch CRT. The 15-inch Apple Studio Display features a white-and-blue color scheme and a $1,099 price tag but is otherwise identical to the $1,299 LCD monitor Apple introduced last year (♦♦♦½; "The World Is Flat," December 1998). *Macworld* will cover the 21-inch CRT, which sports a similar industrial design, in a future issue.

Macworld's Buying Advice This Apple Studio Display is certainly not the cheapest 17-inch monitor you can buy, but it offers crisp text and images, excellent color rendition, and easy-to-use hardware controls without breaking the bank. Owners of older Mac systems may run into technical-support problems because of Apple's official specs, but if you use a Power Mac G3, give it a good look.—STEPHEN BEALE

RATING: ♦♦♦♦ **PROS:** Great display quality for the price. **CONS:** A bit pricey; certified only for Power Mac G3. **COMPANY:** Apple Computer (408/996-1010, www.apple.com). **LIST PRICE:** $499.



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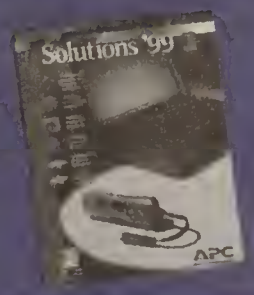

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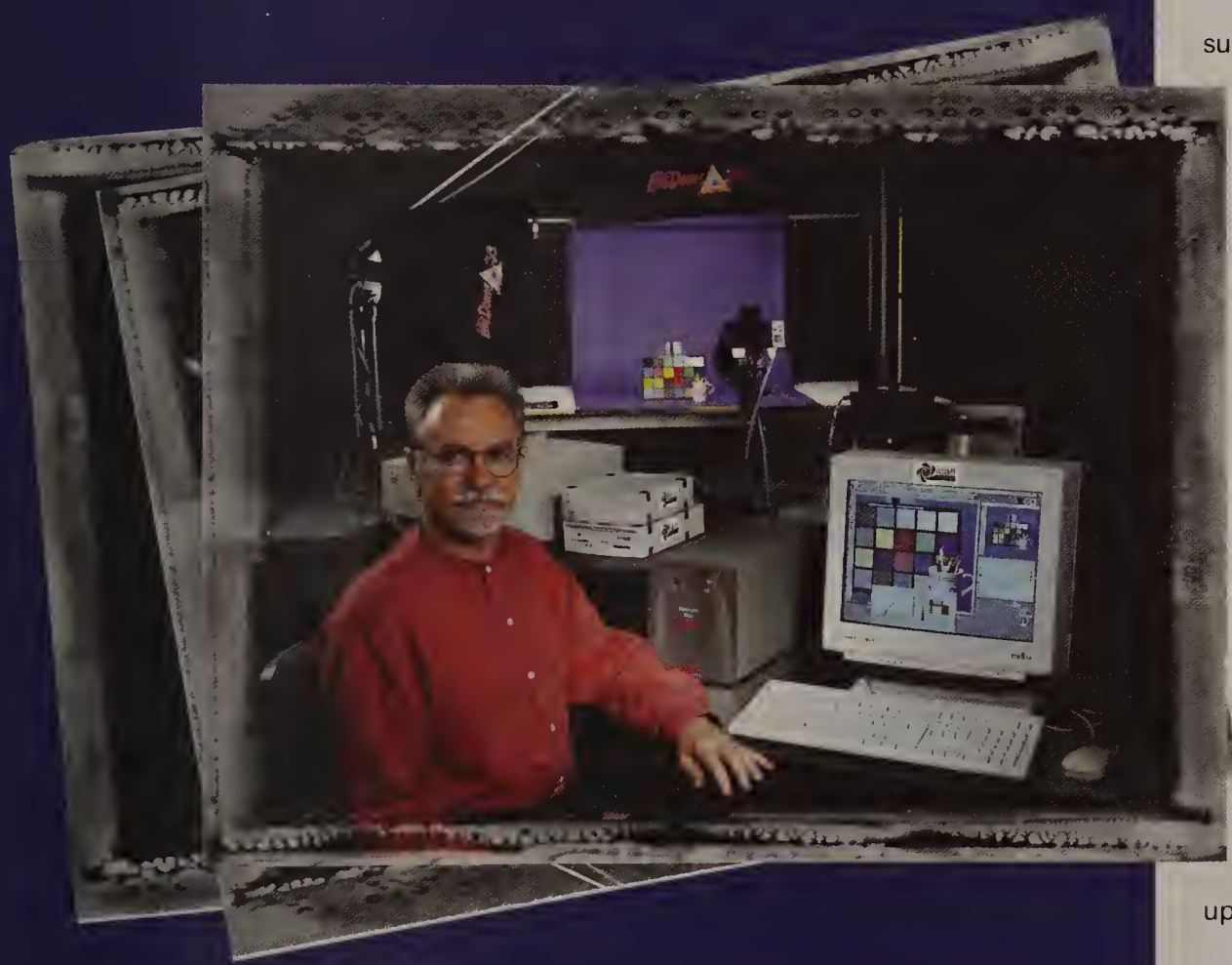

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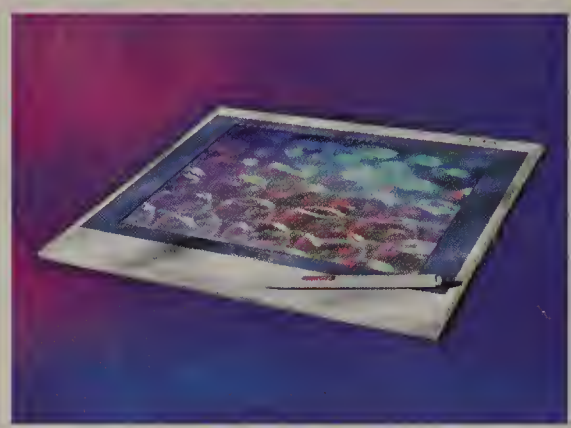
Wacom PL-400

DRAWING TABLET BEEFS UP LCD SCREEN

THE LATEST ADDITION TO Wacom's family of high-resolution, pressure-sensitive graphics tablets, the PL-400 lets you paint and draw directly onto an active-matrix LCD screen built into the tablet. If you've never felt comfortable writing on a tablet while watching your monitor, you'll immediately appreciate the natural feel of drawing directly onto the PL-400's screen. But despite the tablet's fine engineering and intuitive feel, the LCD's limitations for serious graphics work—combined with the $3,000 price tag—make it a tough choice for most users.

The PL-400 is a definite improvement over the smaller PL-300 (see *Reviews*, February 1998). It offers a 24-bit, 13.3-inch screen that supports a resolution of 1,024 by 768 pixels, and it comes with a PCI video card; the PL-300 required a separate video card. And installation is simple: just insert the PCI video card into your computer, attach the external power supply and the tablet's cable to the card, and plug the serial cable into one of your computer's serial ports. The easily adjustable stand lets you tilt the tablet anywhere between flat and upright. The software is equally easy to install and includes controls for adjusting everything from pressure sensitivity to monitor setup.

Unfortunately, the LCD's color reproduction is problematic. Despite the quality of the screen, the tablet's contrast and color



SUZANNE ROADY

gamut are, as with any LCD panel, far inferior to those of a good monitor. And like any other LCD, the PL-400's screen has a limited viewing range; contrast varies greatly, depending on your viewing angle. Although you can adjust the tablet's angle to improve contrast, there's no way to tell which angle will yield the truest color reproduction.

Another problem is sluggish performance: although the tablet's refresh rate is high enough to produce a sharp, steady image, the pen's slight lag time is disconcerting. And because there's a slight space between the drawing surface and the LCD screen, the tip of the pen doesn't appear to correspond precisely to the pixels on the screen. This is particularly annoying when you're doing fine, detailed close-up work.

Macworld's Buying Advice Wacom's LCD pen tablets offer the most intuitive way to interact with a computer—more accurate than a touch screen, more natural-feeling than a regular tablet. But $3,000 is probably more than you want to spend just to have a more comfortable tablet. And although some users won't be bothered by the PL-400's less-than-speedy pen performance, no serious graphic artist could ignore the color and contrast problems inherent in an LCD screen. If you spend most of your day painting or drawing, however, and you aren't concerned with superaccurate color, you'll find that the PL-400 delivers on its claims.—BEN LONG

RATING: ♦♦♦ **PROS:** Very comfortable, natural feel; easy to set up; sharp, stable image. **CONS:** LCD screen makes for inaccurate color and low contrast; slow pen performance. **COMPANY:** Wacom Technology (360/896-9833, www.wacom.com). **LIST PRICE:** $2,999.

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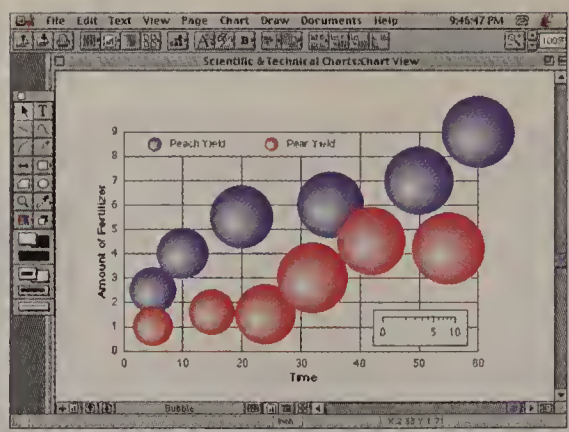
DeltaGraph 4.5

PICTURE YOUR NUMBERS

A FEW YEARS AGO, DELTAGRAPH 4.0 received one of *Macworld*'s highest ratings (see *Reviews*, September 1996). Since then, statistics giant SPSS has acquired DeltaGraph and updated it to accommodate the Web and other changes in Mac computing, but it's still the best Mac program in its field.

DeltaGraph's objective is simple: it reads Microsoft Excel files (and most other common data formats) and turns them into better-looking charts than Excel can produce, with a richer selection of business presentation styles and scientific chart types (see "The Floating World"). The program also handles large data sets more gracefully than does Excel (the included compact version of Design Science's Equation Editor enhances scientific display), and its business presentation charts are cleaner and easier to modify than Microsoft PowerPoint's. To change any element of a chart's appearance, you just double-click on the element and make a few selections.

Also new in DeltaGraph 4.5 is the option to export Web-ready JPEG graphics and import Excel 97 and 98 files. It lets you generate QuickTime 3 slide shows and data animations and adds a Pantone color-picker extension to guarantee color consistency in printed output. Convenient new multipurpose File dialog boxes echo the style of System 8.5's Apple Navigation Manager; new AppleScripts help you set up DeltaGraph as a networked "chart server" and automatically generate Web-based or printed reports. Version 4.5 also adds 11 new chart types: 3 styles of high- and low-close stock market charts, 2 kinds of intensity scatterplots, and 6 kinds of bar and column line-overlay charts.



The Floating World This nicely shaded bubble chart is one of more than 80 aesthetically optimized presentation styles in DeltaGraph 4.5.

These interface improvements were necessary to adapt DeltaGraph to intranet and Internet computing environments, and their implementation is glitch free. The new chart types aren't quite as impressive, however. Some welcome new types have odd defaults; for example, the Intensity Scatter and Paired Intensity charts open with a nearly useless bicolor intensity ramp, necessitating a bit of tweaking. Similarly, the line-width default in various bar charts with line overlays is a nearly invisible rule that calls for another adjustment.

But to be fair, the controls for adjusting chart details are nicely arranged and easy to use, and serious users preparing charts for publication nearly always make extensive departures from the defaults.

Macworld's Buying Advice If it's your job to prepare charts for print or Web publication on a regular basis, it's time to step up to DeltaGraph 4.5 and leave the Excel-PowerPoint duo behind. You'll spend some time mastering DeltaGraph's details, but you'll be rewarded with a big payoff in better-looking charts.—CHARLES SEITER

RATING: ♦♦♦♦½ **PROS:** Great variety of charts; nice scripts for automating report production. **CONS:** Some defaults need fine-tuning. **COMPANY:** SPSS (312/651-3000, www.spss.com). **LIST PRICE:** $295.

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Transfers data easily from floppy disks to/from your hard drive

Dimensions (in/mm):

Width	4.075/103.5
Depth	6.083/154.5
Height	.929/23.6
Weight:	1lb 2oz/544g

This drive Reads & writes standard 1.44MB floppy disks

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Mac

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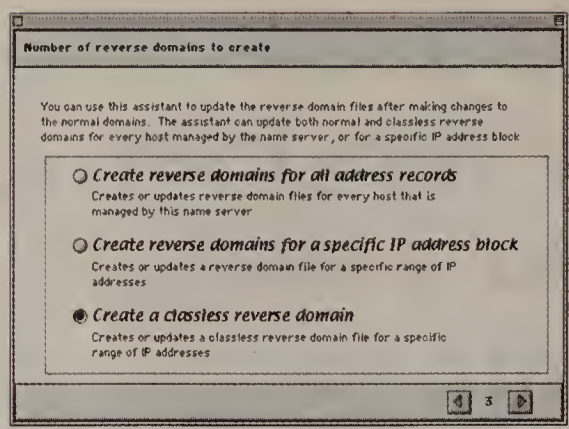
QuickDNS Pro 2.2

DOMAIN NAME SERVER IMPROVES WIZARDS, SECURITY

THE INTERNET DOMAIN NAME System (DNS) is big news these days, both because of the hotly contested changes in DNS policies and because it's turned out to be the linchpin of the Internet—without DNS, you can leave your surfboard at home. Men & Mice brought server-caliber DNS to the Macintosh with its original QuickDNS Pro, which offered Internet domain-name lookup robust enough even for heavily trafficked Web sites. Version 2.2 builds on that base by improving ease of use, performance, and security, boosting the Mac's credibility as a self-contained Internet server.

QuickDNS Pro is easy to install and includes an excellent online (PDF) user's manual. This version retains its predecessor's user-friendly interface, with wizards that lead you through the process of creating various DNS records. Alternatively, you can use the supplied batch-conversion tool to translate DNS records from a text-based DNS server, such as those bundled with Unix and Windows. The product also offers secondary DNS service and dynamic load balancing, two features that enhance a Web-server farm's reliability.



Easy Reverse QuickDNS Pro's domain wizard automates the creation of classless reverse domain files.

New in this version is the ability to import records directly into the server via the administration application, streamlining the process of converting from another platform. Also new is a wizard that automates the creation of classless reverse domain files, a time-consuming and tedious manual process with traditional DNS servers.

This version adds an important security feature that prevents DNS spoofing, a technique for redirecting e-mail or other traffic from its intended destination to a hacker's server. You can also restrict zone transfers to specific secondary servers to further protect domain information.

Other new features give you control over the amount of detail in DNS activity logs and add performance improvements that take advantage of fast G3 processors. In tests against Apple's MacDNS (part of AppleShare IP 6.1), QuickDNS Pro delivered 150 times as many cached and noncached responses per minute as MacDNS. On a Power Mac G3/300 running OS 8.5, QuickDNS Pro easily kept up with Sun's Solaris Unix DNS server running on a 300MHz Intel box.

QuickDNS Pro still can't display the contents of the secondary domains it's serving, but it now includes a debugging tool, DNS Expert, which checks for consistency of DNS information across domains.

Macworld's Buying Advice If you want to avoid the tedium of Unix DNS administration, QuickDNS Pro 2.2 delivers all the performance you could want, plus a feature set that goes far beyond the DNS servers bundled with Unix and Windows.—MEL BECKMAN

RATING: ♦♦♦♦ **PROS:** Domain-setup assistants; antispoofing security; domain file import; dynamic load balancing; redundant Web-server routing. **CONS:** Can't display secondary records. **COMPANY:** Men & Mice (800/242-3364, www.menandmice.com). **LIST PRICE:** $290.

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Dark Vengeance

HACK-AND-SLASHER HITS AND MISSES

ONE OF THE YEAR'S MOST EAGERly anticipated games—Reality Bytes' Dark Vengeance (published by MacSoft)—has finally hit the shelves. Was it worth the wait? Yes and no. Kissing cousin to the Tomb Raider series, this third-person hack-and-slash game offers a more richly realized and expansive world than Lara Croft's, but brings a measure of frustration as well.

As with the Tomb Raider games, you spend most of your time looking at your protagonist's backside while propelling him or her through a labyrinth of levels, gathering goodies, and slaying the spiritually corrupt. The three heroes include Nanoc the Gladiator, a muscle-bound galoot whose strength allows him to wield large, cumbersome weapons; Kite the Trickster, a more agile character who dashes her enemies with lethal powders and other short-range weapons; and Jetrel the Warlock, a bandage-swathed gentleman who prefers long-range weapons.

Room with a View This is just one of Dark Vengeance's richly appointed rooms.

Your heroes can deliver blows in three ways: a quick lateral chop, a slower overhand hack, and a deadlier, backhanded slash. You can block your enemies' attack—unusual for such games. A sweeping graphic arc marks each thrust and parry—green if you or your enemy misses and a satisfying red when blood is drawn. The weapons are not the usual fare; Dark Vengeance's armory is packed with exotic weapons such as Living Flame—a Molotov cocktail you sprinkle on the baddies—and the Vampire Staff, which unleashes a pair of flesh-eating bats. Also unique is Reality Bytes' decision to include cheat codes as a menu item.

The world of Dark Vengeance under 3-D–acceleration hardware—ATI's Rage Pro or a 3Dfx Voodoo card—is beautiful, with its sumptuously colored walls and vast chambers. The software-rendered graphics aren't nearly as impressive as those in MacSoft's Unreal, however. The movement of the characters can be ungainly, and heroes tend to get snagged on jutting corners, barrels, and decorative statuary. And although no one expects such a game's story line to rise to the level of literature, not only is Dark Vengeance's plot convoluted, but the poorly written and occasionally mumbled dialogue makes it even more confusing. Finally, I prefer the bodies of the vanquished to remain visible rather than disappearing after a few seconds. Because the game lacks a mapping element, having familiar bodies scattered throughout the many corridors and halls would make it easier to retrace steps.

Macworld's Buying Advice Dark Vengeance is a beautiful and entertaining diversion that, due to some control problems and an unconvincing plot, doesn't quite live up to its potential. If Dark Vengeance II cleans up these problems, it will be a must-have game.—CHRISTOPHER BREEN

RATING: ♦♦♦½ **PROS:** Beautiful game under hardware acceleration; inventive characters and weapons. **CONS:** Control problems; weak plot and dialogue. **COMPANY:** MacSoft (612/509-7600, www.wizardworks.com/macsoft/). **LIST PRICE:** $40.

OUR EDITORS CAN BEAT UP THEIR EDITORS

MATTHEW ROTHENBERG
Director of Online Content, Mac Publishing L.L.C.

INDUSTRY EXPERIENCE
Joined *MacWEEK* in 1990

Broke scoops on Apple's first Power Macs and successive models as well as its first scanners, cameras and color printers; Adobe's Photoshop 5 and K2 DTP packages; QuarkXPress 4.0; and innumerable other products.

Ran *MacWEEK's* print-news operation, then led its transition from print to the Web.

BACKGROUND
Traded in his manual typewriter for a state-of-the-art Mac SE in 1988. Bitten by the DTP bug, Matthew paid his dues as a publishing consultant before breaking into MacWEEK's mail room. Matthew has served MacWEEK as a speaker and agent provocateur at industry trade shows across the United States and Europe.

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YOUR PERFECT MAC

by Christopher Breen

NO MATTER WHAT YOUR NEEDS, THERE'S A MAC SYSTEM THAT'S RIGHT FOR YOU

Photography by Kevin Candland

A year ago, Mac users had stopped asking the age-old question "Which Mac should I buy?" and instead wondered whether their next computer should be a Mac at all. Given Apple's uncertain future and the power of the seemingly unstoppable Wintel juggernaut, you could hardly blame people for cocking an inquiring eye at the Windows platform.

But that's all changed now.

With the exception of the eagerly anticipated consumer portable, Apple (408/996-1010, www.apple.com) has provided configurations to accommodate just about every type of user. Whether you're a publishing maven, mobile or office-bound professional, hobbyist, or die-hard gamer, there's an ideal Mac for you out there.

So after gathering every shipping Mac and putting them through their paces in the Macworld Lab (see the benchmark, "A Mac for All Seasons"), we pulled in our resident know-it-alls—techies, artists, and editors with vast experience in publishing, multimedia, office productivity, and entertainment media—to offer essential advice for finding the best Macs, peripherals, and software for four different profiles: multimedia and publishing gurus, business professionals, home users, and die-hard Mac gamers and enthusiasts.

Each section provides the best core products to help get you started, along with a wish list of awesome extras. Browse among our suggestions and pick those products best suited to the way you work and play. (Prices given are manufacturers' list prices unless otherwise noted.)

BUSINESS

Although the rest of the computing world seems to cry out with a rebel yell for more, more, more—more-powerful CPUs, more hard-drive space, more PCI slots—typical business applications don't require the kind of power demanded by multimedia, graphics, and entertainment programs. Most business users will find that a Power Macintosh G3/300 provides plenty of computing muscle at a reasonable price.

The Basics

Display Apple Studio Display 17-inch ($499; 408/996-1010, www.apple.com); Mitsubishi 19-inch 900u ($849; 714/220-2500, www.mitsubishi-display.com).
Bright, clear, and large enough screens for all but the most demanding users.

Keyboard Adesso Tru-Form ($70; 310/645-3746, www.adessoinc.com).
This ergonomic keyboard is likely to be kinder to the wrists of your employees and you than Apple's diminutive input device.

Mouse Kensington Mouse-in-a-box ($60; 650/572-2700, www.kensington.com).
Eschew the round mouse and go with this comfortable plain gray model.

Printer Hewlett-Packard HP LaserJet 4000N ($1,419; 650/857-1501, www.hp.com).
At 17 pages per minute this networkable printer is both fast and affordable.

Internet Connection Corporate Ethernet, ISDN, DSL.
If you expect your business to be on the move, your Internet connection should be, too—a 56K modem is too slow for your needs.

Network Sonic Systems SonicWall for ten users ($500; 408/844-9900, www.sonicsys.com).
Keep peeping creeps out of your network with these security appliances.

Software Microsoft Office 98 business suite ($450; 425/882-8080, www.microsoft.com); FileMaker Pro 4.1 database ($199; 408/987-7000, www.filemaker.com); Microsoft Outlook Express (included).
Everyone who's anyone in business uses Word and Excel, FileMaker is a great database application, and Outlook is a free and reasonably capable e-mail client.

SYSTEM SPECS

POWER MACINTOSH

G3/300, $1,599

512K CACHE, 64MB OF RAM,

6GB ULTRA ATA HARD DRIVE,

24× CD-ROM

WISH LIST

Software Adobe GoLive 4.0 Web-page design software ($299; 408/536-6000, www.adobe.com); Chronos Consultant 2.53 organizer ($60; 801/957-1774, www.chronosnet.com); Netopia Timbuktu Pro 4.8 twin-pack remote-control software ($190; 510/814-5100, www.netopia.com).

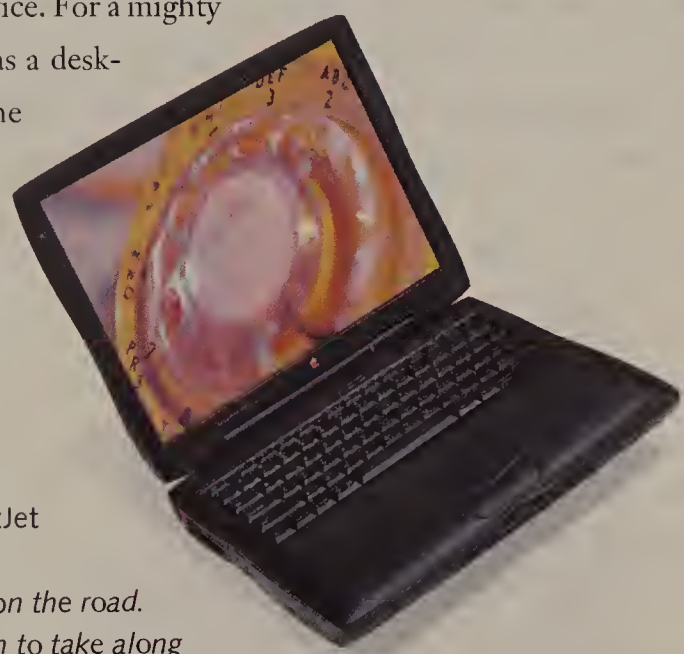
SCSI Card Apple Ultra SCSI ($49).
There's no need to retire old SCSI peripherals.

Digital Camera Eastman Kodak DC260 ($899; 716/726-7260, www.kodak.com).
Consider the DC260, for its picture quality and good controls, or its soon-to-be released successor, the DC265.

Scanner Umax Astra 1220U ($150; 510/651-4000, www.umax.com).
It's cheap and provides decent-quality scans.

P O R T A B L E

When your work isn't confined to the office, consider a powerful on-the-go partner—a G3-based PowerBook. Today's PowerBooks have nearly everything you need in one convenient package: a fast modem; a CD-ROM drive; and, of course, a display, keyboard, and pointing device. For a mighty PowerBook that can also double as a desktop computer, the right Mac for the job is the PowerBook G3/266.



The Basics

Display Included.

Mouse Included.

Printer Hewlett-Packard HP DeskJet 340 ($269).
On occasion, you must print while on the road. This portable printer is small enough to take along with you.

Additional Storage Expansion bay, floppy drive from Apple ($99).

Software Microsoft Office 98 business suite ($450); FileMaker Pro 4.1 database ($199); Qualcomm Eudora Pro 4.0.1 e-mail client ($39; 510/490-4750, www.eudora.com).

SYSTEM SPECS

POWERBOOK G3/266

$2,999

1MB CACHE, 64MB OF RAM,

4GB HARD DRIVE,

20× CD-ROM,

56-KBPS MODEM

WISH LIST

Software Chronos Consultant 2.53 organizer ($60; 801/957-1774, www.chronosnet.com).

Dock Newer Technology BookEndz ($229; 316/943-0222, www.newertech.com).
Connect to your desktop peripherals in a jiffy with this PowerBook dock.

Digital Camera Agfa ePhoto 1680 ($899; 978/658-5600, www.agfa.com).

Display Apple Studio Display flat panel ($1,099).
A PowerBook screen is fine for the road, but at your desk you'll appreciate this larger, crisp display.

DVD Apple DVD-Video Kit ($499).

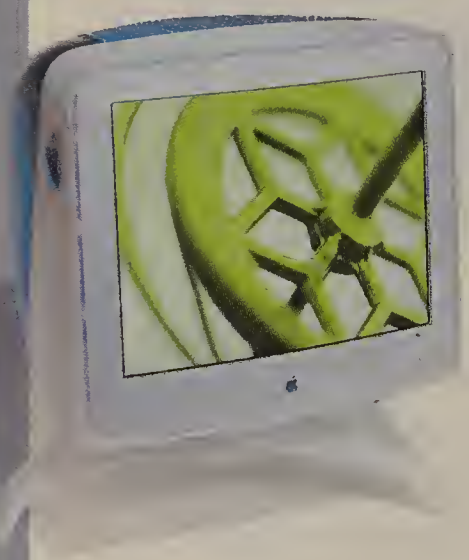
Laptop Road Tools CoolPad ($20; 603/926-9000, www.roadtools.com).
This pivoting plastic pad provides a cooling airspace for your PowerBook as well as plastic feet that really grip a rickety airplane tray table.

Headphones Sony MDR-V600 ($130; 201/930-1000, www.sony.com).

Cool Carrying Bag Port Sport Classic ($149; 203/852-1102, www.port.com).

An Extra Battery From Apple Computer ($199).

ENTHUSIAST



For true enthusiasts, your Mac is a source of both pride and entertainment. Although you know the value of a dollar, expense is a secondary consideration. You want a fast computer such as the 350MHz Power Mac G3, loads of memory, and tons of toys. You'll outfit your system with any device that will give you amusement—a DVD player, high-fidelity speakers, a digital camera, several game controllers, and plenty of games to boot. Face it, you're a gear-head and damned proud of it.

The Basics

RAM Upgrade to 128MB (approximately $140).

Display Apple Studio Display 17-inch ($499; 408/996-1010, www.apple.com).
An inexpensive monitor plenty big enough for gaming and crafting cool Web sites.

Keyboard Macally iKey keyboard USB ($69; 626/338-8787, www.macally.com).
The bundled Apple keyboard's arrow keys are far too small for computer gaming. Try this one instead.

Mouse Kensington Thinking Mouse ($110; 650/572-2700, www.kensington.com); Macally iMousePro ($69).
Face it: with contextual menus you need a mouse with more than one button.

Printer Epson Stylus Color 740 ($249; 310/782-0770, www.epson.com).
An affordable printer that produces glorious results with the right kind of paper.

Internet Connection ISDN, cable modem, or ADSL.
If you expect to compete in online games of Myth II, you'll need a fast Internet connection.

Software Microsoft Office 98 business suite ($450; 425/882-8080; www.microsoft.com); Intuit Quicken Deluxe money-management software ($60; 619/784-4000, www.intuit.com); FileMaker Home Page 3.0 ($99; 408/987-7000, www.filemaker.com); Connectix Virtual Game Station PlayStation emulator ($50; 650/571-5100, www.connectix.com).

Suggested Games MacSoft's Unreal ($50; 612/509-7600, www.wizworks.com/macsoft/); Aspyr Media's Tomb Raider II ($50; 512/708-8100, www.aspyr.com); Bungie Software's Myth II: Soulblighter ($50; 312/563-6200, www.bungie.com); Blizzard Entertainment's Starcraft ($53; 949/955-0283, www.blizzard.com).

SYSTEM SPECS

POWER MACINTOSH
G3/350 DVD, $1,999
1MB CACHE, 64MB OF RAM,
6GB ULTRA ATA HARD DRIVE,
5× DVD PLAYER

WISH LIST

Speakers Sonigistix's Monsoon MM-1000 Multimedia Speaker System ($229; 501/372-0366, www.sonigistix.com).
These speakers provide crystal-clear sound and look hip as hell.

Game Controllers CH Products Gamestick 3D ($50; 760/598-2518, www.chproducts.com); Gravis GamePad Pro ($60; 650/572-2700, www.gravis.com).

Game Card Micro Conversions' GameWizard 12MB Voodoo 2 card ($199; 877/986-4276, www.microconversions.com).

SCSI Card Apple Ultra SCSI ($49).

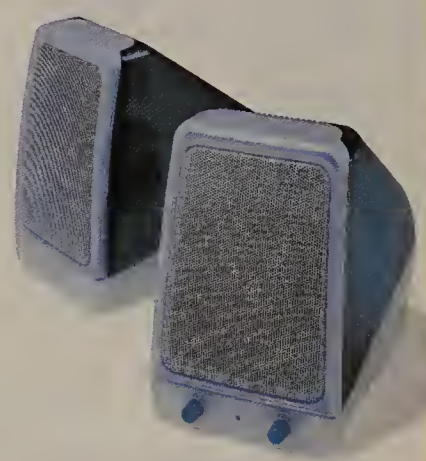
Scanner Umax Astra 1220U ($150; 510/651-4000, www.umax.com).

CD-Rewritable Drive APS CD-RW 4×4×16 ($400; 816/483-1600, www.apstech.com).
Cool cats cut their own CDs. Plus, it's useful for backing up.

Digital Camera Eastman Kodak DC260 ($899; 716/726-7260, www.kodak.com).

HOME

A Mac at home or in a dorm doesn't need to be terribly expensive—but it should be easy to set up and maintain, compact, and powerful enough to handle whatever you throw at it. That means the family finances, the kids' favorite art program, and, of course, just about any game you care to play. Since you don't need a machine that's going to drain your bank account or one that requires an enormous initial outlay of funds for software, consider the affordable and versatile iMac.



The Basics

RAM Upgrade to 64MB (approximately $70).

Display Included.

Keyboard Included.

Mouse Macally iMouse ($39; 626/338-8787, www.macally.com).
Ditch the awful iMac mouse.

Printer Epson Stylus Color 740 ($249; 310/782-0770, www.epson.com).
Get great color prints at a low price.

SYSTEM SPECS

iMAC 266MHZ

$1,199

512K CACHE, 32MB OF RAM,

6GB HARD DRIVE,

24x CD-ROM

WISH LIST

Floppy Drive Newer Technology uDrive ($99; 316/943-0222, www.newertech.com).
Those floppies are still handy to have around.

Speakers Cozo ($70; www.cozo.com).

Game Controllers CH Products Gamestick 3D ($50; 760/598-2518, www.chproducts.com); Gravis GamePad Pro ($60; 650/572-2700, www.gravis.com).

Software Brøderbund Kid Pix Studio Deluxe art software ($30; 415/382-4400, www.broderbund.com); Encyclopædia Britannica reference CD-ROM ($85; 800/747-8503, www.eb.com); Connectix Virtual Game Station PlayStation emulator ($50; 650/571-5100, www.connectix.com).

Suggested Games MacSoft's Unreal ($50; 612/509-7600, www.wizworks.com/macsoft.); Aspyr Media's Tomb Raider II ($50; 512/708-8100, www.aspyr.com); Bungie Software's Myth II: Soulblighter ($50; 312/563-6200, www.bungie.com); Blizzard Entertainment's Starcraft ($53; 949/955-0283, www.blizzard.com).

Interface iDock ($200; 714/557-5510; www.compucable.com).
This crafty computer stand houses several ports: a three-port USB hub, two serial ports, and a parallel port for PC printers.

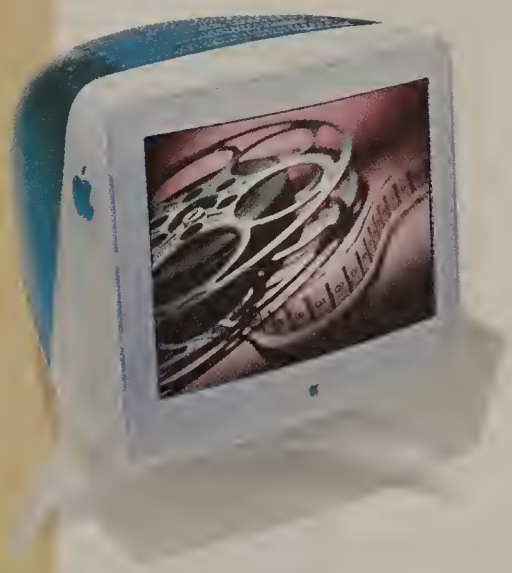
Scanner Umax Astra 1220U ($150; 510/651-4000, www.umax.com).
A fine scanner for putting pictures on the Web, in your e-mail, or in electronic holiday cards.

Digital Camera Canon PowerShot A5 ($150; 516/328-5000, www.usa.canon.com).
A low-priced, easy-to-use camera that takes perfectly reasonable pictures.

USB Removable Storage Card Newer Technology uFlash-CF ($89).
An essential card for the Canon non-USB digital camera.

Game Card MicroConversions' GameWizard for iMac 12MB Voodoo 2 card (233MHz iMacs only) ($199; 877/986-4276, www.microconversions.com).
Glide games such as Quake, Unreal, and F/A-18 Korea look glorious with this card.

CREATIVE ARTS



Multimedia and publishing gurus who work with digital video and/or audio on a daily basis understand that budget takes a backseat to the practical need for a powerful processor and fast storage. Because Adobe Photoshop can take a long time to render complex images on a slow computer, you'll be happiest with nothing less than the top of the line—the 400MHz Power Macintosh G3. And although FireWire's promise is bright, a slew of SCSI peripherals will benefit from this Mac's Ultra SCSI II PCI card (see the sidebar "Maintaining a Legacy").

The Basics

RAM Upgrade to 1GB (approximately $332).

Display Apple Studio Display 21-Inch ($1,499; 408/996-1010, www.apple.com).

Keyboard Adesso Nu-Form (USB) ($60; 310/645-3746, www.adessoinc.com).

Mouse Kensington Thinking Mouse ($55; 650/572-2700, www.kensington.com); Kensington Orbit trackball ($70).

Printer Epson Stylus Color 900N ($649; 310/782-0770, www.epson.com).
Prints on a variety of papers, including card stock.

Internet Connection ISDN or DSL (depending on the work you do).

PCI Expansion Chassis SBS Bit 3 Operations PCI Slot Expansion Unit ($1,036 to $1,846; 651/905-4700, www.bit3.com).
Multimedia users require lots of PCI slots—slots that are anything but abundant on the Power Mac G3's.

SYSTEM SPECS

POWER MACINTOSH

G3/400, $2,999

1MB CACHE, 128MB OF RAM,

9GB ULTRA II SCSI HARD DRIVE

WITH SCSI CARD,

24× CD-ROM

WISH LIST

CD-Rewritable Drive APS CD-RW 4×4×16 ($400; 816/483-1600, www.apstech.com).
Multimedia users will appreciate the ability to cut custom CDs for clients, and graphics users will like the inexpensive storage.

Graphics Tablet Wacom Intuos ($510; 360/896-9833, www.wacom.com).

Second Display Apple Studio Display flat panel ($1,099).
What better place to view the countless QuarkXPress, Photoshop, and Adobe Premiere palettes?

Digital Camera Olympus D-620L ($1,199; 516-844-5000, www.olympusamerica.com).
Good resolution in a professional digital camera.

Speakers Sonigistix's Monsoon MM-1000 Multimedia Speaker System ($229; 501/372-0366, www.sonigistix.com).

Scanner Umax PowerLook 3000 ($3,095; 510/651-4000, www.umax.com).

Software Adobe Premiere 5.1 video-editing software ($895; 408/536-6000, www.adobe.com); MacSourcery BarbaBatch 2.5 audio software ($395; 760/747-5995, www.macsourcery.com); Adobe Photoshop 5.0.2 image editor ($649); Adobe Illustrator 8.0 illustration software ($375); QuarkXPress 4.0 page-layout software ($699; 307/772-7100, www.quark.com); Adobe GoLive 4.0 Web-page design software ($299); MetaCreations Painter 5.5 Web Edition graphics software ($299; 805/566-6200, www.metacreations.com).

Maintaining a Legacy

With the arrival of the iMac and new Power Macintosh G3 systems, Apple has left behind many of the conventions of computing in the 1980s. Gone are the serial and SCSI ports of old—faster, hot-pluggable protocols such as USB and FireWire are the flavors of Apple's future (see "The USB Connection," October 1998, and "iMac Envy," March 1999). But while USB and FireWire are promising, what are today's users supposed to do with their accumulated serial and SCSI devices?

Although Apple has moved on, other developers have stepped into the breach and are providing solutions for connecting old hardware to new Macintosh models. With the help of an adapter or two, your legacy hardware can live on to work another day.

Printers and Modems

Since all of Apple's current desktop models have 10/100BaseT on board, you won't have trouble using a printer that has Ethernet. However, if you have a LocalTalk or serial printer, you need an adapter.

Be warned, however, that some adapters don't work with all serial devices. For example, although Keyspan's (510/222-0131, www.keyspan.com) $80 USB Serial Adapter allows you to connect certain modems and printers to your USB-compatible Mac, it doesn't support LocalTalk printers and networks, nor does it work with MIDI devices such as MIDI interfaces and synthesizers that include a serial port.

Griffin Technology's (615/255-0990, www.griffintechnology.com) iPort and gPort adapters, on the other hand, support not only standard serial devices, such as modems, but LocalTalk devices and MIDI as well. The $80 iPort mounts inside the older iMacs and also provides an external video port (the iPort is currently not compatible with the multicolored 266MHz iMacs). Although the gPort doesn't provide additional video output, it does offer a single serial port. The gPort connects internally to the blue Power Mac G3's motherboard.

Farallon (510/346-8001, www.farallon.com) solves the serial/LocalTalk problem with an adapter for each—the iPrint LT and iPrint SL. Both of these devices, $100 each (company's estimated price), allow you to print via your Mac's Ethernet port. The iPrint LT supports up to eight LocalTalk devices, including iMacs and G3's, and the iPrint SL allows you to print to an Apple StyleWriter.

Input Devices

One lonely ADB port remains on the blue Power Mac G3's, but it's completely absent from the iMac. If you'd like to use an ADB keyboard and mouse, buy Griffin Technologies' $40 USB-to-ADB iMate adapter. And gamers should be on the lookout for the JoyPort USB adapter from Kernel Productions (302/456-3026, www.kernel.com). This $50 device will allow you to connect Genesis, Atari, Sony PlayStation, and Nintendo 64 gaming devices to your USB Mac. By the time you read this, USB game controllers will also be available from Ariston Technologies, Saitek, CH Products, and Gravis.

Hubs

USB allows you to connect multiple devices to your new Mac, but to do so you need a hub—a box that bears several USB ports. One of the most interesting hubs is CompuCable's (714/557-5510, www.compucable.com) iDock. This handy $200 iMac swivel stand carries a three-port USB hub, two serial ports, and a parallel port for PC printers. Reportedly, the iDock won't support LocalTalk, nor are drivers supplied for the parallel printer—those drivers must be obtained by the printer's manufacturer.

SCSI

At press time, USB-to-SCSI converters were not yet available, but three of them should be on the shelves by the time you read this. Newer Technology (316/943-0222, www.newertech.com) is preparing the $80 uSCSI; Microtech (203/483-9402, www.microtechint.com) is slated to ship the $80 Xpress USB; and SecondWave (512/329-9283, www.2ndwave.com) is selling the $79 ScusBee.

Be forewarned: before you buy one of these devices, be sure to consider their limitations. Data moves over USB at only 1.2 MBps—slower than the 5-MBps transfer rate of most Macs' external SCSI and far slower than any SCSI card. This means that not only will data move fairly slowly between your SCSI drives and your new Mac, but applications that require fast data transfer—audio- and video-editing programs, for example—may not be able to pull data quickly enough from these drives. Also, at least one of the manufacturers claims that its product is intended to work only with storage devices; SCSI scanners, for example, may not work with these converters. Although iMac owners will have to rely on such converters for SCSI support, Power Mac G3 users should simply add a PCI SCSI card.

Essentials for Every Mac

There are as many ways to build a perfect Mac as there are Mac users. But some products will enhance any Mac user's computing experience. For example, although Apple has become increasingly generous in its allocation of RAM and hard-drive space, we still feel that your computer can never be too fast. And while Apple provides a serviceable set of utilities, you can do better with the addition of a few troubleshooting, backup, and Internet tools.

Memory To Mac users of old, 32MB of RAM may seem extravagant. But in these days of memory-munching applications, it's barely enough to load the Mac OS and a word processor. Although additional RAM won't make most operations go any faster unless your Mac currently relies on virtual memory, it does allow you to open more applications.

Troubleshooting Apple's Extensions Manager is a good start, but it's not nearly as capable as Casady & Greene's Conflict Catcher 8 (♦♦♦♦♦; $80; 831/484-9228, www.casadyg.com). There's simply no better tool for managing control panels and extensions, and it's also invaluable for tracking down crash-causing extension conflicts. If your screen is littered with extension and control panel icons when you start up, you need this utility.

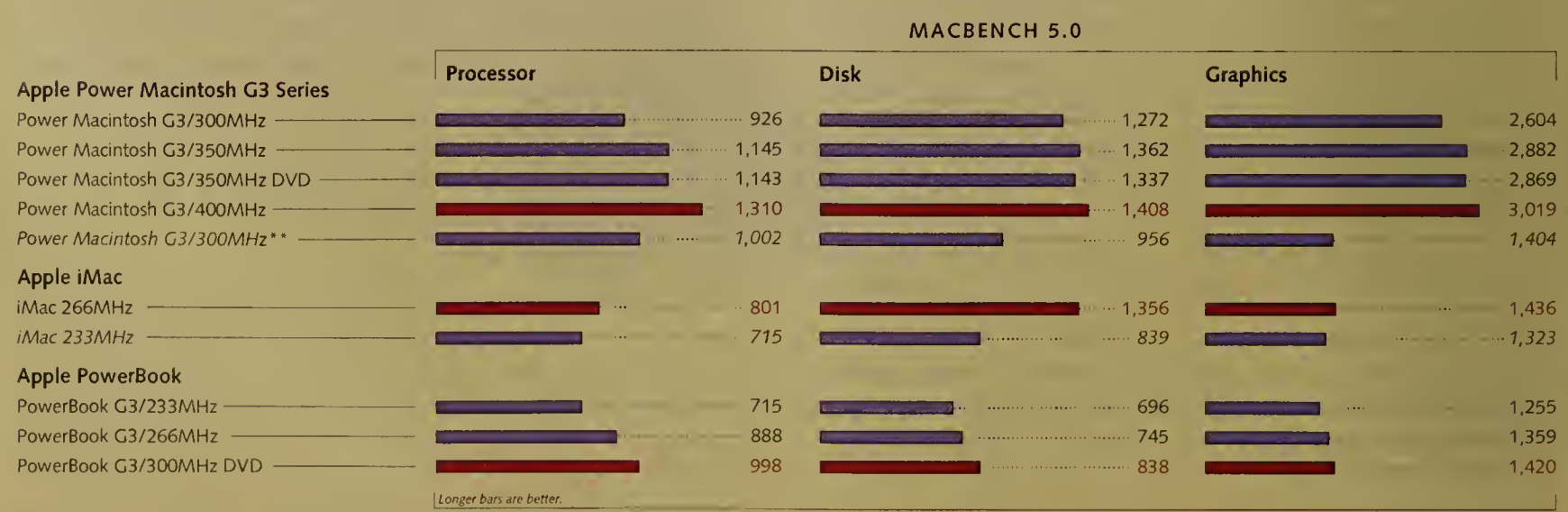
Backup Regardless of how you use your Mac, you must back up your data, and a member of the Retrospect family can do just that—Dantz Development's Retrospect 4.1 (♦♦♦♦♦; $249; 925/253-3000, www.dantz.com) or Retrospect Express 4.1 (♦♦♦♦♦; $50).

Removable Media Apple has shown the way: the floppy drive is dead. From all appearances its successor is Iomega's Zip drive (♦♦♦♦; $150; 801/778-1000, www.iomega.com). Despite the occasional reliability problems with these drives, the Zip provides

Macworld LAB TEST

A Mac for All Seasons

The new Power Macintosh G3's have mastered the art of speed. All four minitowers outperformed the first-generation Power Macintosh G3/300MHz, with the G3/400MHz scoring the highest overall. The high Quake scores indicate that these systems are optimized for improved game play with the new ATI chip set. As you'd expect, the iMac 266MHz outperforms the 233MHz version. And although the PowerBook G3/300MHz DVD is the fastest portable of the lot, the G3/266MHz is more cost-effective.



*At a resolution of 640 by 480 pixels. **Previous G3 architecture. Test unit differed from MacBench reference systems in OS version, screen resolution, and hard drive.

handy and relatively fast storage at a reasonable price. If it's not already installed, we'd add one to each of our recommended configurations. PowerBook users can add VST Technologies' PowerBook Zip (♦♦♦♦; $249; 978/635-8200, www.vsttech.com).

Internet Utilities Although Apple bundles Microsoft's Internet applications, Internet Explorer 4.5 (♦♦♦½) and Outlook Express 4.0 (♦♦♦½), on all Mac models, there are additional Internet applications that every Mac should have. Given some Web sites' preference for one particular browser, it would be wise to install Netscape Communicator 4.5 (♦♦♦; free; 650/254-1900, www.netscape.com) on your Mac. Likewise, Simon Fraser's MT-NewsWatcher 2.4.4 (free; www.best.com/~smfr/mtnw/) is an excellent newsgroup reader. And if you need to employ FTP services, download a copy of Stairways' Anarchie Pro 3.5 (♦♦♦♦♦; $35 shareware; www.stairways.com).

System Enhancements To navigate around your Mac more easily from within Apple's limited Open and Find dialog boxes, buy a copy of Power On Technology's Action Files 1.1 ($50; 612/317-0344, www.actionutilities.com).

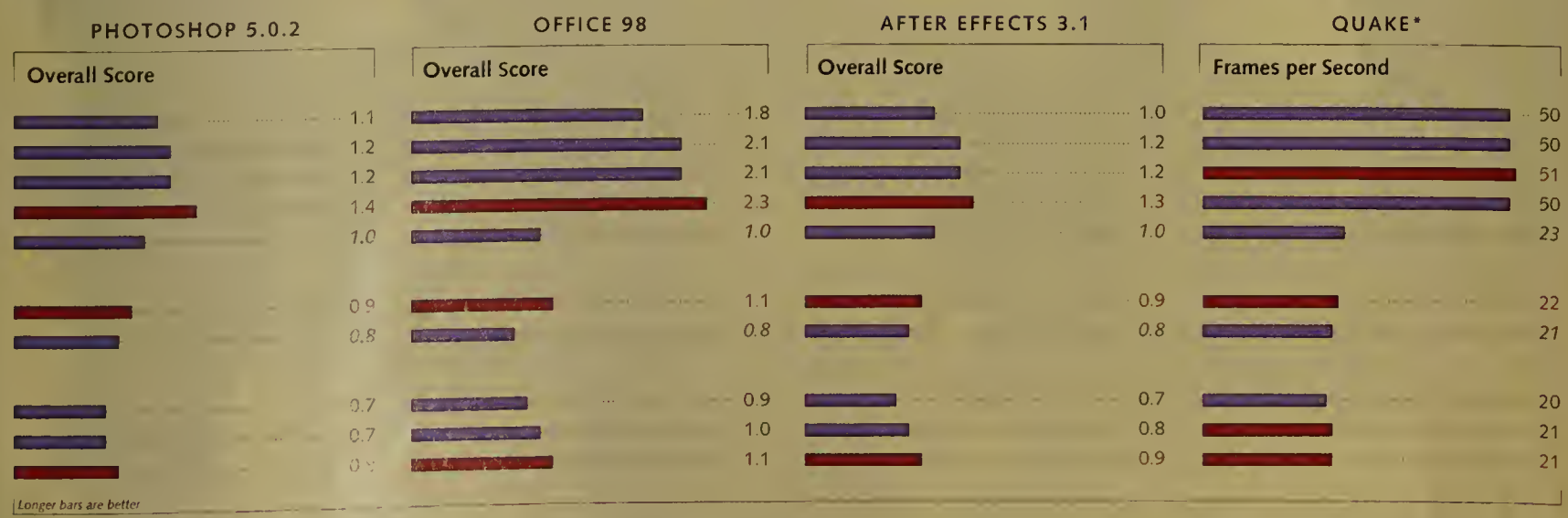
THE LAST WORD

When it comes to finding the perfect Macintosh, you're the best judge of which Mac provides you with all the necessities and fits your budget at the same time. However, certain home truths must be considered when deciding which Mac you should buy. If you're working with high-end graphics and video, you need the fastest Mac on the planet, complete with as much RAM and hard-drive space as you can afford. The entry-level Power Macintosh G3 is a smart business buy, but if you're working on the go, consider a swift PowerBook G3. You'll find no greater bargain in the Apple universe than the iMac—perfect for the home or dormitory. And the enthusiasts just need enough power and exotic peripherals to keep them entertained until Apple begins shipping the next generation of processors.

And there you have it in a single, neat package—the Mac you should buy, the configurations you should consider, the core applications you should have for the work you do and games you play, and numerous suggestions for simultaneously enhancing your Mac and draining your bank account. The Mac you purchase will certainly have the Apple logo affixed to it. But the rest is up to you. **m**

The "Enthusiast" user is based entirely on the life and desires of Contributing Editor and Mac expert CHRISTOPHER BREEN. He is a coauthor of a forthcoming book about the iMac (IDG Books Worldwide, 1999).

Best results for each category in red. *Reference systems in italics.* MacBench 5.0 scores are relative to those of a first-generation Power Mac G3/300, which is assigned a score of 1,000 for each test. The Adobe Photoshop 5.0.2, Microsoft Office 98, and Adobe After Effects 3.1 scores are also relative to those of the baseline system, which is assigned a score of 1.0.



Behind Our Tests

The MacBench subsystem tests are tuned to measure and isolate the performance of the processor, disk, and graphics subsystems. (Download your own free copy of MacBench 5.0 from www.macbench.com.) For application testing, several tasks were performed; the results were averaged and then normalized to the baseline. For more information on our tests, see www.macworld.com/tests/.—Macworld Lab testing supervised by Gil Loyola

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INDESIGN CHALLENGES QUARK'S PAGE-LAYOUT SUPREMACY

ADOBE ANSWERS XPRESS

by David Blatner

If you're a professional publisher or designer, chances are you put food on your table by using QuarkXPress, Adobe Photoshop, and perhaps Adobe Illustrator. For quite a while, Adobe has wished you'd switch to an *all*-Adobe diet, but the company's page-layout program, PageMaker, has failed to attract high-end publishers. That may be about to change. *Macworld* got a chance to work with a prerelease version of Adobe Systems' (408/536-6000, www.adobe.com) newest and brightest hope for taking back the page-layout crown. The program—codenamed K2 and now officially known as Adobe InDesign—is expected to ship this summer with an estimated street price of $699. From what we saw, InDesign promises to at least give professional publishers pause to think, and may offer them a real alternative to QuarkXPress for the first time in years.

First Impressions

Let's get one thing straight: InDesign is *not* an upgrade to PageMaker. Adobe will release PageMaker 6.5 Plus this summer at an estimated street price of $499. This refocused application will be chock-full o' wizards, templates, and clip art and will be aimed at the (mostly Windows) business and consumer markets. So what *is* InDesign?

It's a brand-new page-layout program, built from the ground up. (Notably, it will work only with Mac OS 8.5 and later, to some users' chagrin.)

The first thing you'll notice is that this is clearly an Adobe program—from the familiar Navigator palette to the layout of the Tool palette (see the screen shot "The InDesign World"). As you look more closely, though, you'll also observe elements of PageMaker and QuarkXPress, with a strong dash of Illustrator too.

Some PageMaker traits are absent. For example, you lay out InDesign pages much as you do QuarkXPress designs, on a large pasteboard. InDesign's Control palette—command central for making changes to items on your page—is broken down into three palettes: Transform, Character, and Paragraph. It also lacks PageMaker's ability to alter every setting in the palette using keystrokes (although it contains more settings than the one in QuarkXPress). PageMaker's long-document features such as indexing are also missing.

InDesign does appear to have some of the flexibility that PageMaker users have always crowed about. For example, the program lets you place text and graphics on the page with or without drawing a frame first. Still the big news is not how similar this program will be to PageMaker but how it might meet, or exceed, the features designers have come to know in QuarkXPress.

It's the Little Things

InDesign doesn't introduce many new big-and-flashy features to desktop publishers. Where it appears to shine is in attention to small but important features, removing many of the frustrations that have long plagued users of both PageMaker and QuarkXPress. (For a more complete list, see the sidebar "Ten Great Features.")

Timesaving Touches A simple example of InDesign's attention to detail is the program's unlimited number of undo's, which will free you to experiment with designs as you can in many other apps. Similarly, InDesign lifts some other barriers that QuarkXPress users have learned to work around, such as the inability to anchor a box outside a column of text or to move a box past the edge of the pasteboard. InDesign will even spare you the hassle of having to choose whether a frame is for a text block or a picture: frames are always generic until you put something in them.

The InDesign World

Multiple Document Views
InDesign lets you open multiple views of the same document so that you can, for example, keep track of how changes to one page affect the document as a whole.

New Tools
InDesign's Tool palette includes many tools familiar to Illustrator users, including the Bézier pen tool, the scale and rotate tools, and the direct-select tool (the tool that looks like a hollow arrow).

Easy-Access Stroke and Fill
QuarkXPress users may think it odd that there are Fill and Stroke boxes in the main Tool palette (this program is for *page-layout*, not drawing, right?), but Illustrator users will appreciate the easy access.

Innovative Page Possibilities
The Pages palette is similar to QuarkXPress's Document Layout palette but includes several innovative features. For instance you can base one master page on another.

Quick Color Application
Easily seen and understood icons in the Swatches palette make for swift decisions when applying colors.

Elegant Alignment
The Align palette offers you an intuitive way to align objects in your design. This is a step up from QuarkXPress's ugly modal dialog box.

Customizable Control
The Control palette can be split into three parts that you can view vertically—if you prefer your palettes tall instead of wide.

Familiar Territory
InDesign looks a *lot* like other Adobe products, from the familiar Navigator palette to the Layers palette. With more than 17 palettes altogether, it's also fortunate that you can dock and minimize them (as shown here).

A Plentiful Pasteboard
InDesign's pasteboard is almost identical to QuarkXPress's, but it doesn't have the same space constraints.

A Tamer of Troublesome Text InDesign's text features will appeal to designers and production people tired of the drudgery of manual copyfitting and kerning. The Multi-line Composer feature can calculate hyphenation and justification settings by examining an *entire paragraph* (or as many lines as you specify), instead of just a single line, to create better-looking text (see the screen shot "Better-Set Type"). In the process, it notably reduces the amount of manual tweaking necessary and will be especially helpful if you're trying to avoid multiple word breaks in a design with awkward text wraps. Similarly, the program's Optical Kerning feature does its best to find optimal character spacing, even if you've mixed different type sizes and faces. The program's text-linking features are also quite well designed (see the screen shot "New Linking Scheme").

A Clear View Taking a cue from Photoshop, InDesign will offer one feature that will probably become a favorite of many desktop publishers: the ability to open multiple views of a document. This means that you'll be able to zoom in on some type you're formatting in one window while seeing how your changes affect the page design as a whole in another window.

A Whole New Approach

You can't really see the most revolutionary aspect of InDesign, a feature of the program that ensures its future competitive potential: it's almost completely modular. That means most of the tools and features will be based on plug-ins and shared libraries. At first glance this is pretty dull news, but it has several important effects.

Powerful Plug-in Possibilities Third-party plug-in developers will have an unheard-of amount of power to create new features and change existing ones. Don't like the InDesign interface? Change it. Need to connect the program to a mainframe database? No problem. Have your own proprietary hyphenation schemes? Great—plug 'em in. In fact, many QuarkXPress XTension developers have already started developing for InDesign, including Extensis, a lowly apprentice production, and Em Software.

Quick Fixes Adobe will be able to update existing features (and eradicate the inevitable bugs) *quickly*. You'll even be able to set a built-in preference in InDesign to check periodically for new updates on Adobe's Web site and download them automatically.

Supremely Scriptable Just about *everything* in the program can be automated with AppleScript (on a Mac) or Visual Basic (in Windows). The ability to automate tedious and complicated tasks in QuarkXPress has long been one of the program's key advantages for professional users.

The Big Switch

All of this sounds great, but the real question is, will QuarkXPress users make the switch? Adobe certainly is going to try to make the process as painless as possible.

Familiar Surroundings As a longtime QuarkXPress user, I was immediately pleased by InDesign's customizable keyboard shortcuts. The product will ship with a complete set of shortcuts that match the ones in QuarkXPress, making the transition between applications much less time-consuming. Similarly, many of InDesign's dialog boxes and menu items will be comfortably familiar to QuarkXPress stalwarts.

Perhaps most important, InDesign will be able to open QuarkXPress documents (from versions 3.3 and 4.0) and retain the majority of the documents' formatting, so you won't have to

TEN GREAT FEATURES

1. EPS Display You will be able to magnify an EPS file and see its contents instead of viewing only an inexact bitmapped preview. (In fact, you won't even need to save previews with EPS files anymore, which means smaller files.)

2. Typographic Controls InDesign will be able to apply hyphenation and justification based on a whole paragraph rather than just line by line. Plus, optical kerning and optical margin alignment (even better than hung punctuation) will help you create great-looking type.

3. Character Styles The ability to apply styles at the character level is quite powerful. QuarkXPress 4.0 lets you do this, but in some ways InDesign will offer greater control.

4. Bézier Paths Although drawing Bézier curves for lines and frames is fun, the ability to copy or drag paths from Illustrator and then edit them is truly useful. InDesign will also recognize embedded clipping paths in images or create them on the fly.

5. PDF Support The rumor that InDesign's internal file format would *be* Adobe's Portable Document Format (PDF) isn't true. Nonetheless, InDesign will offer extensive support for PDF, including the ability to read and write files without the help of Acrobat Distiller. This is great if you need to place PDF files in your document or do minor edits, but don't expect to reconstruct an entire PDF document.

6. Language Support InDesign will ship with dictionaries and hyphenation rules for most European languages and will even be able to set the language for a single word in a paragraph. In addition, it will be Unicode compliant, so you can open files from the Japanese version of InDesign (although you won't be able to edit the text fully).

7. Nesting Objects You will be able to paste a rectangular text box inside an oval frame, place that group inside some text that has been converted to paths, and then still go back and edit the original text or text box with the direct-select arrow tool.

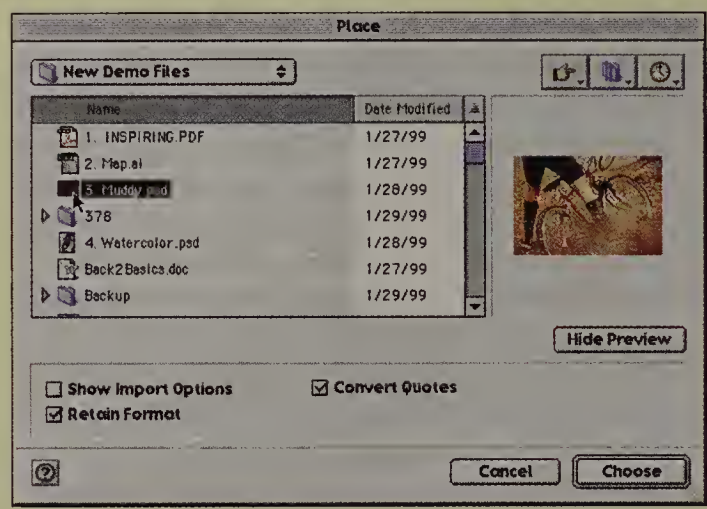
8. Guides and Grids You will be able to quickly build a grid of guides on your page, or even place or position a single guide numerically.

9. Consistent Imaging Model Because Adobe is building the same imaging model into all its programs, you should get significantly more-consistent color and screen display among Illustrator, Photoshop, and InDesign. You will also be able to place Illustrator and Photoshop files in your documents without first saving them as EPS or TIFF files.

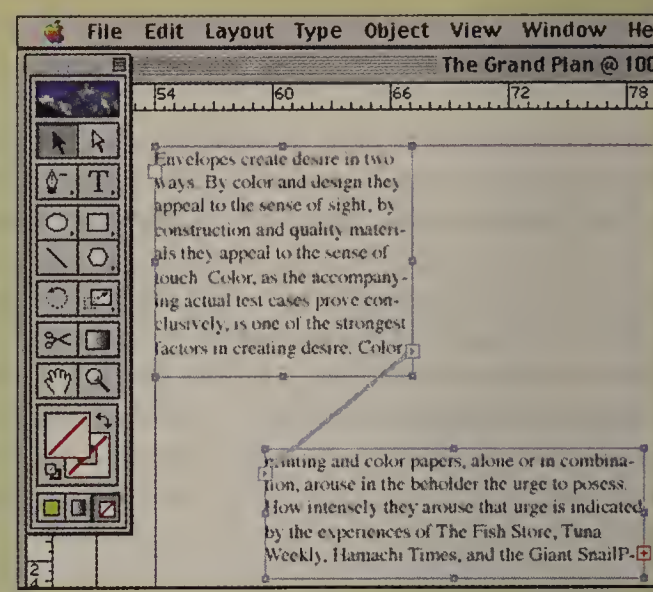
10. Better Master Pages You will be able to quickly turn a document page into a master page, and even build master pages that are based on other master pages (so a change on one master page can ripple through several others).

Little Steps, Big Payoff

There's not enough space in this article to describe *all* the features that will be in the upcoming InDesign, but here are some other extras that might make a difference to you.



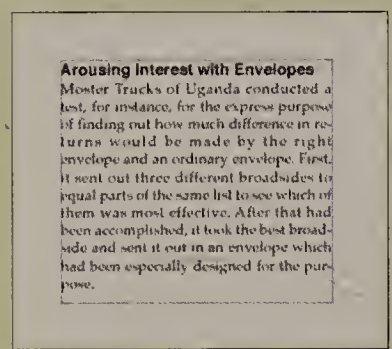
File-Type Freedom Gone are the days of converting all your images to TIFF and EPS before placing them. InDesign can accept native Illustrator, PDF, and Photoshop files. (Layers automatically get flattened in Photoshop files.) You can even do low-level editing of Illustrator and PDF files *within* the program.



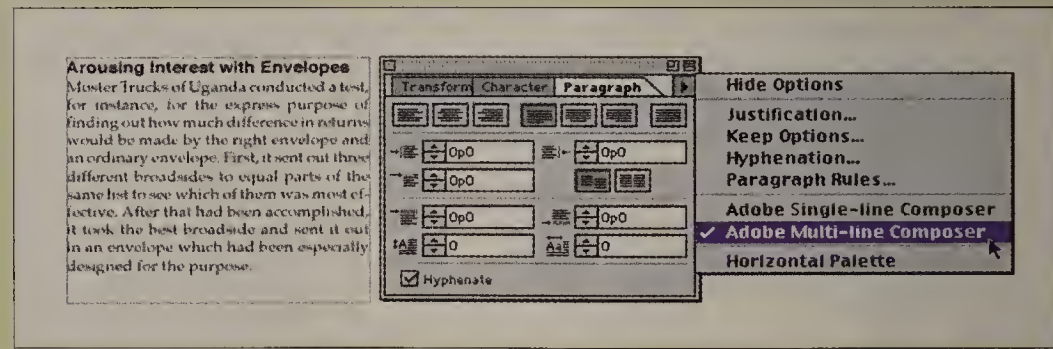
New Linking Scheme InDesign's elegant text-linking feature gives you quick feedback about which way your text is flowing by assigning each text frame an "in-box" and "out-box."

Artistic Bonuses You can apply a gradient to text without losing the ability to edit that text freely—you can even edit Bézier points in your drawing files.

Before



After



Better-Set Type In the Before shot, InDesign calculated line breaks in the traditional way—by applying settings one line at a time—with mediocre results. In the After shot, the Multi-line Composer considered different line-break schemes across *multiple* lines to get better-looking justified type.

re-create your templates from scratch. Of course, it's still too early to tell just *how well* the program will do the conversions.

Potential Pitfalls On the other hand, some of InDesign's features may be confusing to QuarkXPress users. In general, the program's illustration features appear to be similar to those in QuarkXPress 4.0, with the important exceptions that you won't be able to put text on a path and there are only basic merge features for combining multiple paths. But some of the ways these features are implemented may trip up Illustrator-ignorant users. For example, there are Stroke and Fill boxes in the *main* Tool palette, which will make little sense to some people since this is a page-layout program. The version we looked at also defined and applied colors in a way that will be unfamiliar to people who live and breathe QuarkXPress. For instance, the current beta version of InDesign doesn't support the building of multi-ink colors (inks that are a combination of other spot-color inks), an easy task in QuarkXPress.

The Last Word

If you've worked in publishing for a while, you remember when PageMaker and QuarkXPress would periodically leapfrog each other in features and usability. Those were exciting days when we all had a lot to look forward to each time a new version hit the shelves.

It doesn't look like InDesign 1.0 will represent a quantum leap over QuarkXPress 4.0 when it ships, but the program will offer some exciting new features that will raise the bar for page-layout pros. Multiple undo's, the ability to display high-resolution vector EPS graphics at any magnification, and powerful typographic controls will whet the appetite of PageMaker and XPress users alike. We'll have to wait for the review to see who will be victorious, but one thing is clear—this summer Adobe will be back in the fight. m

DAVID BLATNER is the author of *The QuarkXPress 4 Book* (Peachpit Press, 1998) and coauthor of *Real World Photoshop 5* (Peachpit Press, 1999).

Technically, it's still a computer game.

FALCON® 4.0

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MODEMS' LAST STAND

What do records, eight-track tapes, and floppy disks have in common? All three are gadgets that served us well in their time but have disappeared from everyday use because more-efficient devices have replaced them. Believe it or not, it's almost time to add analog modems to that list.

BY MEL BECKMAN

ANALOG MODEMS WILL SOON BE OBSOLETE— HERE IS WHAT'S NEXT

Even at a top speed of 56 Kbps, today's fastest modems can't compete with digital technologies such as ISDN (Integrated Services Digital Network), DSL (Digital Subscriber Line), and cable modems—all of which can give your Internet connection a huge speed boost because they don't have to rely on the slow, noisy analog phone lines we use for voice communication.

While 56K modems are on their way out, they're definitely not dead yet. Modems still are essential for faxing and remote access from hotels and other outback locations. No matter who you are, you'll likely still have a 56K modem in your life for the foreseeable future. That's why, in addition to testing today's digital technologies, Macworld Lab tested five 56K modems to find which one is the best (see the sidebar, "The Last Modem You'll Ever Buy?").

But we also wanted to make sure you're prepared for a telecommunications future that's becoming more real every day. Which high-speed technology should you choose? Each of these three fast Internet technologies has its own particular strengths and weaknesses—not all of them may be available in your area, each offers its own set of technical challenges, and one may be better suited for your particular needs. Let *Macworld* be your guide to the new frontier of high-speed Internet access.

ISDN RIDES AGAIN

Having been around for years, ISDN is the most widely available digital Internet service. It's the high-speed technology most closely related to analog-modem technology and is well understood by Internet providers, meaning it may cause you less of a headache to set up than some of the newer connection technologies.

ISDN is different from analog-modem technology and DSL in that it uses a digital phone line, not a standard analog phone line. (You can't just plug your regular phone into an ISDN jack and expect a dial tone.) Unlike analog modems, ISDN doesn't modulate an audio signal in order to send data—it can send digital data directly, making ISDN much faster than analog modems and virtually error-free.

Two-Way Speed ISDN offers *symmetrical bandwidth*—you can upload at the same speed as you can download, an important consideration for business users, telecommuters, people who plan on running Web servers, and anyone else who transmits a lot of data. Of course, typical Internet users tend to download a whole lot more data than they upload.

ISDN operates at speeds from 112 Kbps to 128 Kbps, depending on the type of equipment you use, and you're assured of getting that speed all the way to your Internet provider. To use ISDN, you must be within ten miles of your telephone company's nearest central office.

What It Costs An ISDN line costs about twice as much as an ordinary phone line: between $25 and $50 per month. Add to that another $25 to $50 for Internet service, and you're looking at between $50 and $100 per month for a complete package. However, in most areas, you must also pay a penny or two per minute to the phone company for ISDN usage, plus normal long-distance rates if you're dialing an ISDN number out of your area. Those usage charges can add up to significant expense—$100 or more per month on top of your flat monthly rates—if you're online a lot.

However, ISDN does give you a great deal of freedom of choice. Because you can place ISDN calls anywhere in the country, and even to many international destinations, ISDN gives you complete flexibility in choosing an Internet provider. Because you can dial up different ISDN numbers, just as you can different phone numbers with an analog modem, ISDN has also become popular for companies offering telecommuting services to their employees.

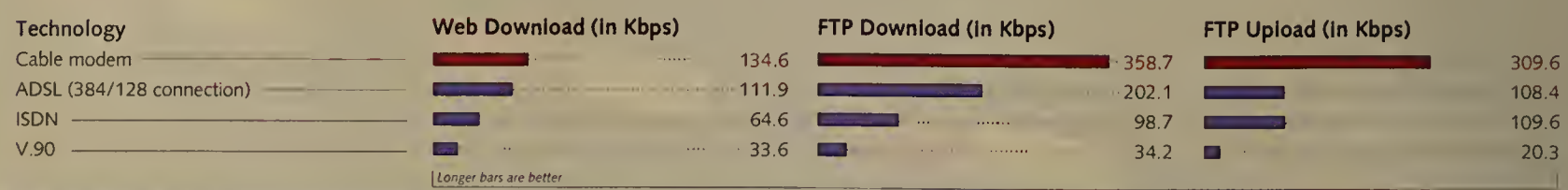
Getting Connected To use ISDN, you must have an ISDN terminal adapter (sometimes called an ISDN modem) or an ISDN-capable Ethernet router. The terminal adapter connects to your Mac through a serial port (the same type of port used to connect modems and printers), while an ISDN router uses the Mac's Ethernet port. Terminal adapters are less expensive, but the Mac serial port's inherent limitations peg top throughput at

Macworld LAB TEST

The Digital Age

When it comes to sheer speed, both cable modems and DSL rocket past the V.90 analog modems that predominate today. ISDN's speed and wide availability make it a popular high-speed choice, but it can't really compete with the top speeds of DSL and cable.

Best results in red.



Behind Our Tests

We connected a Power Macintosh G3/300 running Mac OS 8.5.1 to the Internet via each respective connection technology, and then proceeded to upload and download files to a Unix-based server located several thousand miles away from our test sites. For our Web Download test, we used Microsoft's Internet Explorer 4.0.1 to repeatedly download a frame set containing 32 different HTML, GIF, and JPEG elements totalling 680K. For our FTP tests, we used Fetch 3.03 to repeatedly download and upload a 2.4MB StuffIt archive of a QuarkXPress document. Because we conducted these tests over the Internet, they may not be repeatable.—**Macworld Lab testing supervised by Kevin Mitchell**

ILLUSTRATION BY KEVIN NEWMAN

about 100 Kbps. Routers cost more, but they let you exploit ISDN's full 128 Kbps and let several Macs and PCs share a single Internet connection.

You also must order a special ISDN phone line from your local telephone company. Most ISDN Internet providers offer a package deal where they order the line for you and supply an ISDN terminal adapter or router. One caveat: be certain that your ISDN Internet provider is a *local* call from your location. Otherwise, you'll have to pay per-minute charges in addition to all your other fees.

ARNOLD TIOSEJO

Final Frontier The Global Village TelePort 56K V.90 Mac Modem is our favorite of a dying breed—the 56K analog modem.

Over the years, *Macworld* has tested virtually all the Macintosh-friendly ISDN devices (see "Connect with ISDN," October 1997); a visit to the product-review archives at www.macworld.com will help you choose the best ISDN gear for your needs. Our favorite is probably the $550 Pipeline 75 from Ascend (www.ascend.com), a reliable, inexpensive, and easy-to-configure ISDN router. Prices range from $300 for single-user devices to $600 for multiuser ISDN routers.

DSL COMES OF AGE

As local phone companies and their competitors have rushed to deploy DSL service in major metropolitan areas, DSL has been the subject of a lot of recent hype. DSL works by adding digital-data–transmission capabilities to an ordinary phone line—if you get DSL, your phone wire will carry both analog voice signals and digital data. A device called a splitter, installed by your DSL provider where your phone lines enter your house, separates the analog phone line (which then connects to the ordinary phone jacks in your house) from the DSL line. The DSL line then runs from the splitter to a DSL modem.

Slower Up than Down The variation of DSL that you'll most likely encounter is ADSL, or Asymmetrical DSL—so named because upload and download speeds can differ, unlike with ISDN. DSL requires that you be within about three miles of your telephone company's central office (in contrast with ISDN's ten-mile limit)—and DSL's maximum speed drops as the distance increases. At its fastest, DSL can deliver an impressive 6 Mbps for downloads and 640 Kbps for uploads—more than forty times faster than ISDN for downloads; at its slowest, it's about as speedy as ISDN for downloads and can be slower than an analog modem for uploads.

What It Costs DSL line costs vary by speed. Expect to pay between $30 and $50 per month for low-end service (384 Kbps for downloads, 128 Kbps for uploads) and between $100 and $200 per month for high-end service (1.5 Mbps for downloads, 384 Kbps for uploads). In addition to installing the DSL line, you'll have to subscribe with an Internet provider that's supported by your DSL provider. Some single-user connections cost as little as $10 per month for low-end speeds. You must also pay for a local phone line over which the DSL service rides, but that may well be your existing analog phone line.

Because DSL uses ordinary phone lines, it's available to businesses as well as homes. However, don't expect to serve your 50-user LAN with a $100-per-month 1.5-Mbps DSL connection. Most Internet providers add a surcharge for multiple users, and business connections incur even higher surcharges.

As a bonus, Internet and DSL providers often offer telecommuter and branch-office services that let you use DSL to interconnect remote users with your LAN. Although you'll likely pay more for these services, you'll still save a bundle over the cost of a private wide-area network.

Since most DSL connections are asymmetrical, it's impractical to run high-volume Web or FTP servers via DSL. However, low-volume servers can be run via DSL without much trouble.

Getting Connected The DSL modem connects to your Mac via the Ethernet port, because the serial ports available on most computers simply can't accommodate DSL speeds. DSL-modem prices run between $500 and $1,000. As with ISDN, most DSL providers offer package deals in which they order the DSL line for you and supply the necessary DSL gear. Some will even offer and install an Ethernet card if your Mac lacks an Ethernet port. If you sign up for a year or more, providers often discount start-up costs, reducing your equipment outlay to $300 or less. (Be sure to check to see if your prospective DSL provider supports the Mac—recently, the Internet has been teeming with horror stories about ignorant DSL providers refusing to support Macs for no clear technical reason.)

The bottom line is that DSL gives you the widest selection of Internet providers of any Internet-connection technology besides the analog modem. And unlike ISDN, which incurs per-minute usage charges that can be high when you're calling a distant Internet provider, DSL is a dedicated connection that's always online with no per-minute or distance-sensitive costs.

NOT YOUR FATHER'S CABLE TV

Perhaps the best bargain of high-speed–connection options is the cable modem, which uses your coaxial television cable and delivers speeds of up to 10 Mbps for downloads and often 50 percent or more of this speed for uploads. However, that speed can be quite variable—because that television cable must deliver traffic simultaneously to a few hundred or a few thousand users, speeds can slow if lots of people in an area are using the Internet at once.

The Cable Guy Cable modems are undeniably fast, but the nature of cable Internet services has some drawbacks. Virtually all cable Internet providers exclude competitors, so if you want a cable modem, you're stuck with your cable company as your

THE LAST MODEM YOU'LL EVER

When *Macworld* last tested 56-Kbps modems (see "The Modem Showdown," April 1998), the modem world was in horrible upheaval. Two competing standards, K56flex and x2, had torn the modem community apart. Different service providers supported different standards. Users were confused. And even worse, the modems we tested were often inconsistent, unreliable, and just plain slow.

All of that bad mojo is gone now, replaced by a unified modem standard, V.90, that will probably be the last analog-modem standard you'll ever need. This time, the modems Macworld Lab tested were all well behaved, compatible with one another, and faster than the last batch when it comes to surfing the Web.

All five of the Mac-friendly V.90 modems we tested performed comparably. FTP download speeds varied by less than 2 Kbps, and all five modems performed virtually identically when it came to sending data. As a result, the choice of which modem to buy hinges much more on price and features than it does on raw speed.

If you do a lot of uploading, however, it's important to note that these modems are still quite poky when it comes to sending data upstream. Not one of the V.90 modems we tested could keep up with the speed of an old-fashioned 33.6-Kbps modem when it came to uploading files.

SOFTWARE CHOICES

Of all the available fax software bundled with these modems, Global Village's GlobalFax (bundled with Global Village's $150 TelePort 56K V.90 Mac Modem) is the most user friendly, powerful, and convenient to operate. STF's Faxstf (bundled with Zoom Telephonics' $139 Zoom/FaxModem 56Kx) is a close second, with most of the features of GlobalFax but offering a less polished user interface. Diamond Multimedia's Faxcillitate software (included with the company's $120 SupraExpress 56e Mac) includes a Mac-native voice-mail application but has mediocre fax capabilities. The worst fax software we tested was Smith Micro's MacCommCenter (included with both 3Com's $120 U.S. Robotics 56K Faxmodem and Viking Components' $120 Viking 56K External Modem), an outdated, feature-poor package with compatibility problems under Mac OS 8.5.

All of the modems also incorporated voice-, fax-, and data-call sensing to automatically direct incoming calls to a phone or the fax software as appropriate. The modems from Zoom and Diamond offer integrated voice mail, but Zoom's modem unfortunately requires a PC sound card, making that particular feature incompatible with the Mac.

PAYING UP

The price you pay for a modem largely determines the level of support you'll

MODEMS AT LAST: 56-KBPS MODEMS COMPARED

Company	Product	Mouse Rating	List Price	Contact	Fax Software	Comments
3Com	U.S. Robotics 56K Faxmodem	♦♦♦	$120	847/262-5000 www.3com.com	MacComm-Center	High price; very poor fax software.
Diamond Multimedia	SupraExpress 56e Mac	♦♦♦½	$120	408/325-7000 www.diamondmm.com	Faxcillitate	Fastest modem in tests; Mac-integrated voice mail; mediocre fax software.
Global Village	EDITORS' CHOICE TelePort 56K V.90 Mac Modem	♦♦♦♦	$150	408/523-1050 www.globalvillage.com	GlobalFax	Excellent fax software and support.
Viking Components	Viking 56K External Modem	♦♦½	$120	949/643-7255 www.vikingcomponents.com	MacComm-Center	Poor Mac support and documentation; very poor fax software.
Zoom Telephonics	Zoom/FaxModem 56Kx	♦♦♦½	$139	617/423-1072 www.zoomtel.com	Faxstf	Low price; good fax software; voice-mail feature not Mac-compatible.

BUY?

receive. The vendors of the most-expensive modems have Macintosh-savvy support staff and Mac-centric Internet connectivity assistance. Again, Global Village excelled at Mac-oriented service, and Zoom Telephonics also offered excellent technical support. Diamond Multimedia's support came in a close second to Global Village's. Viking Components' technical support was the least helpful; when *Macworld* called to ask some common tech-support questions, its telephone technicians knew nothing about the Mac product's features or software. The Viking Web site also offers little Macintosh-specific support information.

MACWORLD'S BUYING ADVICE

If you use your modem for day-in, day-out Internet access, the extra dollars you spend for a Mac-proficient modem is a worthwhile investment. If you use your modem for faxing as well as Internet access, get a modem with good fax software: either Global Village's or Zoom's will do. Global Village's TelePort 56K V.90 Mac Modem won our Editors' Choice award. While not the cheapest or fastest modem—its list price of $150 was the highest of all the modems', and it was a tiny bit slower than our speed champs—we feel that Global Village's excellent Mac-friendly software and support more than make up for those slight differences.

EDITORS' CHOICE

Global Village TelePort 56K V.90 Mac Modem With price and speed so similar among the contenders, the best modem is the one with the best features and software. Global Village (now owned by Boca Research) started life as a Mac-only vendor and knows Mac-user needs intimately, as reflected in the fit and polish of the company's software, packaging, documentation, and technical support. **Company:** Global Village (408/523-1050, www.globalvillage.com). **List price:** $150.

REAL PRODUCTS REAL RATINGS

Reviews you can trust *Macworld* rates only final shipping products, not prototypes. What we review is what you can actually buy.

Internet provider. Think about that for a minute. No matter what happens to your service, no matter what complaints you have about support or performance, and no matter how much the provider raises prices down the road, you won't likely have the recourse of switching to another cable provider. Business users in urban locations or in office buildings may have to pay exorbitant installation charges. Most cable suppliers currently treat their subscribers as "viewers" rather than users and don't cater to the special needs of businesses by offering such services as dedicated IP addresses, telecommuting, and secure interoffice connectivity.

What It Costs Cable Internet service typically runs $25 to $50 per month in addition to whatever you pay for cable TV service. Currently, most cable providers offer only a single speed of service, don't guarantee a minimum data-transfer speed, and charge extra for multiple computers. You may need Ethernet wiring to connect your cable TV box to your computer; most cable providers ask that you arrange the installation of that wiring yourself.

Getting Connected The provider supplies you with a cable modem—costing between $300 and $600 but often rented as part of the service—which you connect to your computer, either via Ethernet or using a special adapter card installed in your computer. Often, the card-based methods don't support the Macintosh—check with your cable company to see if it offers a Macintosh-friendly option, such as a cable modem that uses Ethernet as its connection scheme.

FULL SPEED AHEAD

Macworld Lab ran performance tests on the gamut of modern connectivity technologies: 56K modems using the V.90 standard, ISDN, ADSL, and cable modems. The results show just how much faster the all-digital technologies are than analog modems (see the benchmark "The Digital Age").

The 56K Modem Compared with 33.6-Kbps modems, which usually reach their rated 33.6-Kbps throughput, 56-Kbps modems disappoint. The best speed we saw among 56K modems was 41.4 Kbps on an FTP download and a mere 27.5 Kbps on an FTP upload—and those numbers were not from the same modem (see "Maxed-Out Modems"). Achieving a full 56 Kbps depends on extremely clean phone lines and isn't something you can even expect to regularly achieve. (For the whole 56K modem story, see "The Last Modem You'll Ever Buy?")

ISDN ISDN dynamically connects at two possible speeds based on demand—either 64 Kbps for one channel or 128 Kbps for two channels—and Web browsing often doesn't move enough traffic to keep both channels dialed up. So when Macworld Lab tested ISDN's speed at Web browsing, we got results that hovered around 64 Kbps. File transfers, however, took full advantage of both channels, achieving an average throughput of 104 Kbps.

DSL We tested a typical Ethernet-based DSL modem over an ADSL connection that promised a download rate of 384 Kbps and an upload rate of 128 Kbps. We obtained consistent download speeds of 100 Kbps (Web) to

200 Kbps (FTP). Upload speeds were slower due to the connection's asymmetrical bandwidth: top upload speeds were about 100 Kbps. That's still much faster than the speeds we achieved with the notoriously slow-to-upload 56-Kbps modems. And because our tests were on a type of DSL connection that's commonly available for home users, they don't show the upper limits of DSL's speed—you can get much higher speeds by simply paying more for a speedier DSL line.

Cable Modems At first blush, cable modems seem to win any speed contest. Macworld Lab obtained a Web-browsing speed of 134 Kbps—faster than any other high-speed option but still a far cry from the 10 Mbps (10,000 Kbps) the technology can potentially deliver. Still, these speeds are much faster than you can get with an analog modem; our file-transfer tests hit more than 350 Kbps on download and 300 Kbps on upload.

Note, however, that the speed you see with a cable modem can vary widely based on cable-modem usage in your area. Unlike ISDN and DSL, both of which guarantee a fixed data rate to your Internet provider, cable modems suffer performance drops as more of your neighbors start surfing. Moreover, cable providers can't easily address congestion problems by adding equipment—the broadcast wiring for cable subscribers is already installed and expensive to modify.

THE LAST WORD

The high-speed Internet service you choose depends largely on what you can get. For light-duty home use, nothing beats a cable modem for convenience and low cost. You already have the wire coming into your house, and cable Internet service costs the least of any of the high-speed services out there today, while delivering the best performance—at least for now.

If your cable company hasn't begun to offer Internet service yet, consider DSL. It's only a few dollars more per month than a cable modem for home users. If both are available in your area, you may still want to consider the long-term advantages of DSL: higher guaranteed throughput and more freedom of choice.

For small-office/home-office connectivity, where you might need to connect a small LAN of several users to the Internet, DSL is a better choice. The competitive nature of the DSL market helps minimize costs. DSL offers a range of Internet providers from which to choose, as well as enhanced business services such as telecommuting, branch-office connectivity, and low-volume Web hosting.

If you're in an area not yet served by DSL or cable modems, consider ISDN as an interim service until higher-speed access becomes available. Telephone companies and cable providers are rolling out new services at a prodigious rate in large metropolitan areas, with many forecasting complete coverage within 12 months. So if you're not far from an urban center, you may have to stick with ISDN only for a year or so.

For users in the frozen wastelands of modemsville, take heart. Today's 56-Kbps modems are the pinnacle of analog communications technology over phone lines. You'll never have to buy another analog modem for your desktop Mac after today, because the quality of the analog telephone network simply won't allow them to get any faster. And as DSL and cable technologies seep out of the metropolis to rural highways and byways, faster access will be coming your way soon. m

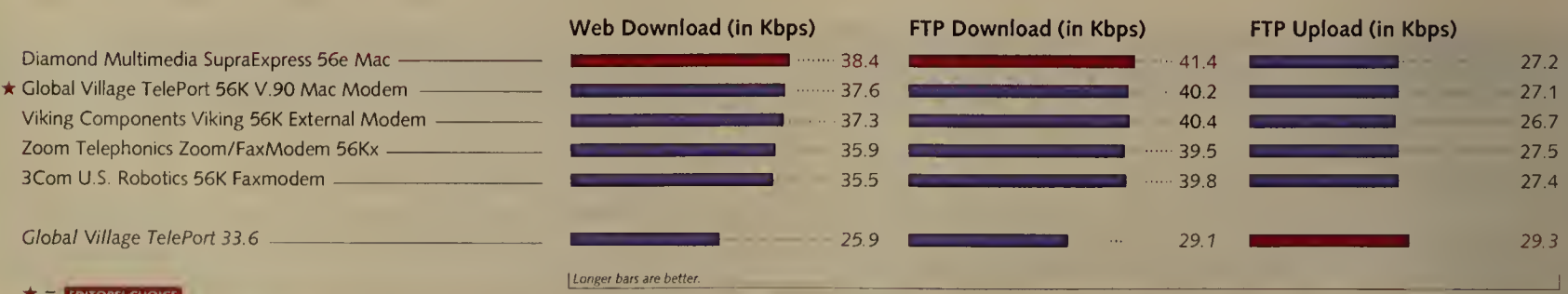
Contributing Editor MEL BECKMAN is a consulting network engineer who helps Internet providers implement high-speed digital access.

Macworld LAB TEST

Maxed-Out Modems

All the 56-Kbps modems we tested performed comparably, with only a small variation in speed. Although the Diamond Multimedia SupraExpress 56e Mac modem was our overall speed champ by a nose, it's important to note just how slow these V.90 modems are when it comes to uploading—in that test, our reference 33.6-Kbps modem was faster than every V.90 modem.

Best results in red. *Reference product in italics.*



Behind Our Tests

All the modems we tested dialed in to a 400MHz Dual Pentium Xeon–based Intergraph remote-access server running Windows NT 4 and Microsoft's Internet Information Server 4.0. The scores are the average results of connecting to the server via a 3Com Courier I-Modem and an Ascend Max 1800 BRI remote-access modem with 7.0.1 Firmware. For individual results for each server-modem type, go to www.macworld.com/tests/. Our client machine was a Power Macintosh G3/300 running Mac OS 8.5.1. For our Web Download test, we used Microsoft's Internet Explorer 4.0.1 to repeatedly download a frame set containing 32 different HTML, GIF, and JPEG elements totaling 680K. For our FTP tests, we used Fetch 3.03 to repeatedly download and upload a 2.4MB StuffIt archive of a QuarkXPress document. Because we conducted these tests over our local telephone network, they may not be repeatable.—**Macworld Lab testing supervised by Kevin Mitchell**

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Secrets

Tap Into the Location Manager

THIS VERSATILE CONTROL PANEL ISN'T JUST FOR FREQUENT FLIERS

by Joseph Schorr

RICHARD DOWNS

Lots of people think of the Location Manager as a control panel that's only for PowerBook-toting business travelers—a handy gizmo that makes it easier to reset your clock when you're jetting between San Francisco and New York, for example.

But the Location Manager—which has come with desktop Macs as well as PowerBooks since Mac OS 8.1—is good for much more than city switching. It lets you reconfigure almost your entire system—everything from your default printer to the sound-output level—with a single click. Once you've mastered its secrets, you can leapfrog past a half-dozen control panels, changing your Mac's basic setup in a matter of seconds. With Location Manager 2.0 (which comes only with Mac OS 8.5) you can change your AppleTalk, TCP/IP, File Sharing, Modem, and Remote Access settings; launch any applications you want; reconfigure your e-mail client and Web browser; and turn dozens of extensions and control panels on or off without having to open a single dialog box. (Previous versions of Location Manager are more limited.)

How It Works

Location Manager lets you store the configurations from several different control panels—such as TCP/IP, AppleTalk, and Extensions Manager—in a single location file. By activating a location setting during start-up, you change the setup of several different control panels all at the same time.

To make this magic happen, open up the Location Manager control panel and choose New Location from the File menu. Give the new location a name, and click on Save. Then begin assembling the configuration you want, by clicking on any of the items in the Location Manager's Settings list. For each of the items, you can click on Apply to capture the settings that are currently in use on your system or click on Edit to open a control panel and change the settings to the ones you want stored. For details about working with these settings, see "Location Manager Logistics."

Here's a sampling of how you can use Location Manager to handle some routine system-setup tasks that could otherwise be a hassle.

One Machine, Two Personalities

Do you share your Macintosh with another person? If so, you can use Location Manager to quickly reconfigure the system for each of you on start-up. For example, my wife and I share one Mac, but we run very different systems. Loca-

continues

tion Manager makes juggling our two setups a breeze. When the Mac starts up, Location Manager automatically prompts us to choose a location (see "Where Am I?"). Choosing His or Hers (the two location settings we've saved) from the pop-up menu customizes the system for each of us. Her location setting opens the Launcher on start-up (it's selected as one of the Auto-Open Items in Location Manager's Settings list); switches the Extensions Manager to a sparse set named Minimal; makes her color ink-jet printer the default printer; and turns on her Internet settings, activating her e-mail user name and password, dialing up her ISP, and directing her preferred Web browser to a custom home page containing her favorite links.

Whenever I start up the same Mac and activate my location setting, the Launcher

Where Am I? Location Manager can prompt you to choose a location setting each time you start up.

stays hidden, my own set of extensions gets turned on, our monochrome laser printer becomes the default printer, and all the Internet settings are switched over to accommodate my preferences—my ISP and my user name and password.

The Commuter Computer

If you carry a PowerBook from work to home each night, creating two location settings—one for the office and one for home—saves time. The office setting can connect your Mac to the network via Ethernet, choose a nearby workgroup printer as the default, flip on file sharing, and set up your TCP/IP control panel to access the Internet via the company network. When you go home at night, starting up with an alternative location setting can switch your AppleTalk connection from Ethernet to LocalTalk, target your personal printer as the default, and configure your TCP/IP settings to handle a dial-up connection to a local ISP.

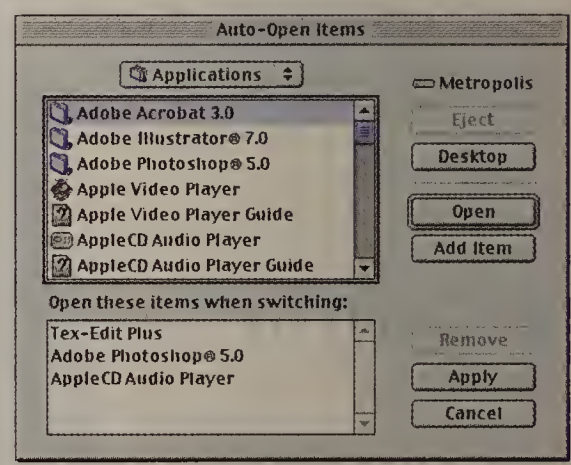
Start-up Items Done Right

It's easy to have files launch themselves on start-up by using the Startup Items folder. Problem is, sometimes you don't want those items to start up—and stopping them is a hassle. You have to press the shift key at exactly the right moment to disable those start-up items.

With Location Manager, though, it's easy to create two alternate location settings—one that includes start-up items (called Auto-Open Items) and one that doesn't (see "Getting Started"). Just choose the location you want at start-up, depending on whether you want the self-launching files to be triggered.

Configuration Migration

Ever get a new computer and find yourself spending half the day reconfiguring the new system, painstakingly re-creating the settings you had on your previous Mac? Location Manager provides a valuable shortcut: you can import and export Location settings. Just launch Location Manager, activate the location setting you want to export, and choose Export Location from the File menu.



Getting Started With Location Manager, you can designate any files as Auto-Open Items. They will launch themselves whenever the location is chosen—either at start-up or at any other time during a work session.

Use the Import Settings command in Location Manager on your new system to install the settings.

Location Is Everything

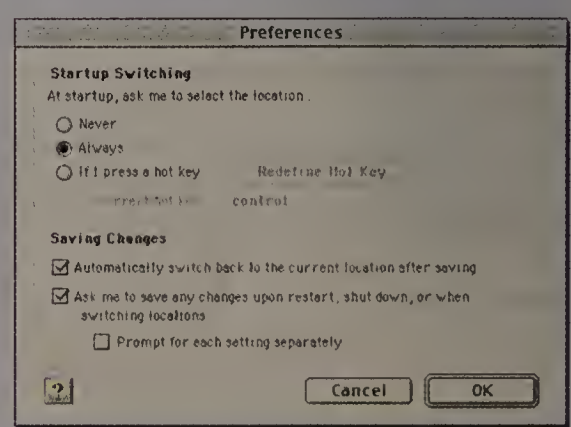
Once you've tapped into the power of Location Manager, you're sure to find all sorts of reasons to create new location settings—even if you never get on another plane. **m**

JOSEPH SCHORR is a coauthor of *Macworld Mac Secrets*, fifth edition (IDG Books Worldwide, 1998).

Location Manager Logistics

LOCATION MANAGER IS ONE OF THE Mac's most powerful control panels but not one of the most intuitive. Here are some guiding principles to help.

- Before you even touch Location Manager, you must first create and save configuration settings for most of the individual components—such as Extensions Manager, Modem, Remote Access, TCP/IP, and AppleTalk—that you want to control.
- Location Manager won't let you use control-panel configurations that have the name Default. If you're running control panels such as AppleTalk and Modem under default configurations, duplicate those configurations and give them different names. Choose the Configurations command from the File menu in control panels such as Remote Access, Modem, TCP/IP, and AppleTalk to duplicate, rename, and save configurations.
- You don't have to restart to switch locations. Just make the change in the Current Location pop-up menu in the Location Manager control panel or select the location from the Location Manager module on the control strip to change configurations. (Some settings, such as a saved Extensions Manager set, won't take effect until after restarting.)



Start-up Check-In If you want Location Manager to prompt you at start-up, you have to turn on one of the Startup Switching options in Preferences.

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Secrets

Tips, Tricks, and Shortcuts

by Lon Poole

Drowning in screen clutter? Clear the blight of excess windows from your desktop with a click of your mouse—two clicks at the most. For your first click, James Gates of Harrisburg, Pennsylvania, suggests that you scrunch up all the windows of the active application by option-clicking the collapse box of the active window. If necessary, a second step hides the windows of all other applications (see the end of this item if you've forgotten how to do this). To expand all collapsed windows of the active application, option-click the active window's collapse box.

You can also expand and collapse all the active application's windows by option–double-clicking the title bar of any window, active or inactive. To affect just one background window, ⌘–double-click its title bar. Now try option-⌘–double-clicking an inactive window's title bar.

Note that these double-click tricks won't work if you have the relevant option turned off in the Options section of Mac OS 8.X's Appearance control panel or Mac OS 7.6's WindowShade control panel.

(To hide the windows of all but the active application, choose Hide Others from the Application menu.)

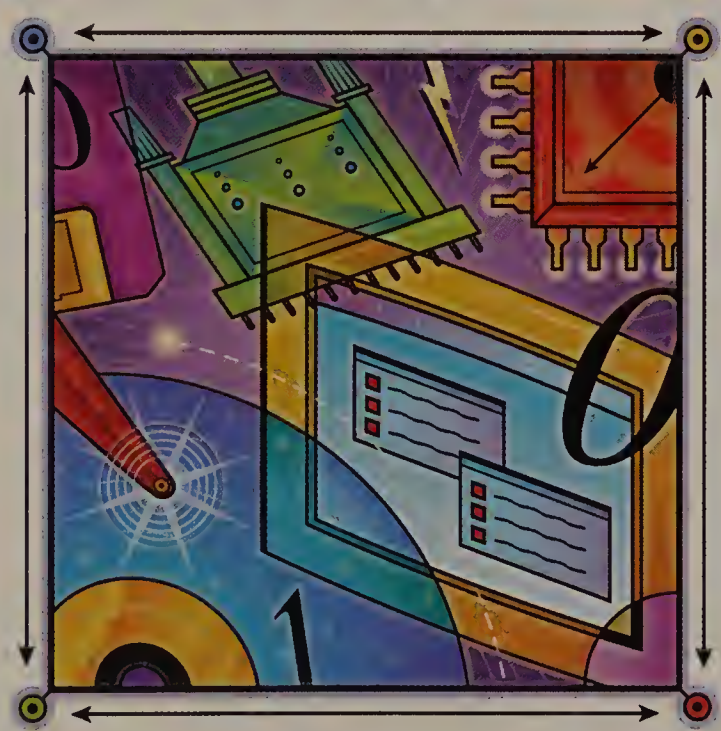
Find and Replace Tabs

Q. How can I enter tab and return characters in the Find and Replace dialog boxes in ClarisWorks and Microsoft Word?

ROBERT ALLAN SCHWARTZ
Cambridge, Massachusetts

A. In ClarisWorks, type \t or press ⌘-tab to enter a tab character. To enter a return character, type \p or press ⌘-return. To enter a line-break character, type \n. For a list of other special characters you can enter in the Find/Change dialog box, choose the ClarisWorks help index from the Help menu and look under the keyword Finding Text and the topic "Find and change text."

In Microsoft Word (all versions), you can type ^t to enter a tab character, ^p for a return character, or ^l for a line-break character. You can also choose these and other special characters from the Special pop-up menu near the bottom of the dialog box. If you don't see this pop-up menu in Word 98, click the More button in the Find dialog box. Word 98's on-screen help has a list of special characters you can find and replace; look in the help index under the keyword Finding Data and the topic "Examples of special characters and document elements you can find and replace."



Create a Sound WAV

Q. My friends and I like to send sounds to one another (Barney Fife saying "Andy! Andy!" and so forth). How can I create WAV files to send to my buddies who have Wintel machines? And how can I listen to the WAV files they send me?

DAN TEMPAS
Midland, Michigan

A. If your system has QuickTime 3, you can open and play various types of sound files, including the Windows WAV format, in MoviePlayer, SimpleText, or any other application that can open QuickTime movies. To open WAV files in applications other than MoviePlayer, turn on the Enable QuickTime Exchange option in the QuickTime Settings control panel. If you upgrade to QuickTime 3 Pro, you can also convert sounds to WAV files by using MoviePlayer's Export command. Mac OS 8.5 includes QuickTime 3 and a free upgrade to the Pro edition; if you haven't upgraded to 8.5 yet, you can download the standard edition of QuickTime 3 free from Apple's Web site at www.apple.com/quicktime/ and pay $29.95 for the Pro upgrade. QuickTime 3 works with System 7.1 and later.

If your system has QuickTime 2.5, MoviePlayer can open and play most WAV files, but SimpleText and other applications can open only some WAV files. With QuickTime 2.5, even MoviePlayer can't open a few WAV files that it can open with QuickTime 3—it's rather arbitrary, so the only way to really know for sure is to give it a try. You can also convert between WAV files and Mac sound files with freeware such as Norman Franke's SoundApp.

continues

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Make Some Euros

Q. How can I write the euro currency symbol (€)?

ALLEN MORRISON
New York, New York

A. Apple has added the euro symbol to the following fonts distributed with Mac OS 8.5 and later: Apple Chancery, Capitals, Charcoal, Chicago, Courier, Gadget, Geneva, Helvetica, Hoefler Text, Monaco, New York, Palatino, Sand, Skia, Symbol, Techno, Textile, and Times. With any of these fonts except Symbol, you type a euro symbol by pressing option-shift-2. With the Symbol font, you press option-T. Apple is not currently distributing these updated fonts separately from Mac OS 8.5.

If you don't have Mac OS 8.5 or 8.5.1, you can obtain three free euro fonts from Adobe's Web site at www.adobe.com/supportservice/custsupport

Stickies Gets Personal

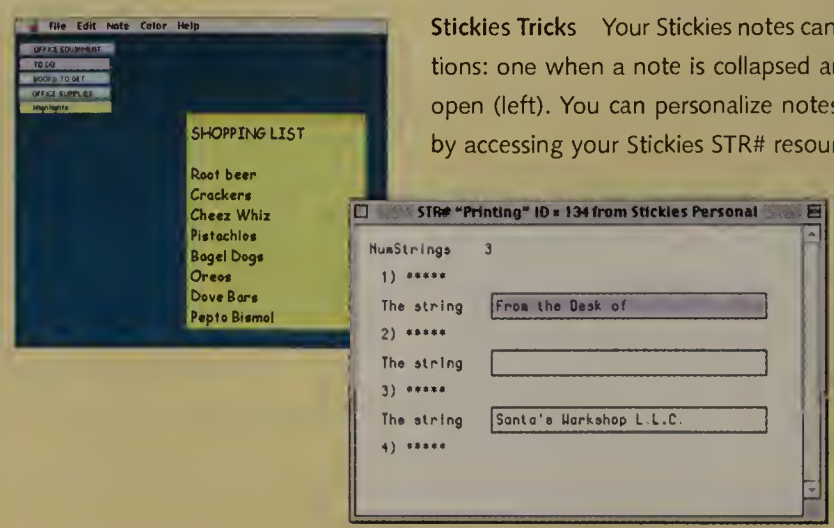
JUST WHEN YOU LEAST EXPECT IT, ALONG COME NOT ONE BUT *TWO* WAYS to enhance the inconspicuous Stickies program that the Mac OS has included since System 7.5.

Michael Merwin of Gracewood, Georgia, noticed that Stickies remembers two positions for each note, one for when the note is open and the other for when it's collapsed, and he uses this feature to organize his notes. He clicks each note's zoom box to collapse it and stacks the collapsed notes in a corner of his desktop (see "Stickies Tricks"). Stickies displays the first line of each collapsed note in its title bar, reminding him of the note's contents.

Clicking a collapsed note's zoom box opens it in its previous location, and clicking its zoom box again returns it to the stack of collapsed notes. If you have the Zoom-Box Collapses Window option turned off in Stickies' Preferences menu, you need to option-click a note's zoom box to collapse it.

James C. LaRoche of Marina del Rey, California, discovered how to change the text that Stickies prints before and after your name in the footer of every note you print (by default, Stickies uses the Owner Name from the File Sharing or Sharing Setup control panel). To change the footer text, you need a resource editor such as Apple's ResEdit freeware or Mathemaesthetics' Resorcerer (www.mathemaesthetics.com).

First, create a duplicate of the Stickies application in the Apple Menu Items folder and name the duplicate Stickies Personal. Open Stickies Personal in your resource-editing program of choice, and double-click the STR# resource item in the Stickies Personal resources window. In the STR# resources window that appears, double-click resource ID 134, Printing. The window for this resource shows three text strings you can edit to personalize your Stickies. It's easy to make additional personalized copies of Stickies with names such as Stickies Business and Stickies Funny.



Stickies Tricks Your Stickies notes can remember two positions: one when a note is collapsed and another when it's open (left). You can personalize notes' printed footer info by accessing your Stickies STR# resource ID 134 (below).

/LIBRARY/503a.htm. With each of the fonts—sans serif, serif, and monospace—you can type a euro symbol by pressing any key. These fonts work with any Mac OS version, but sizes other than 10 point tend to look jagged on screen and with non-PostScript printers unless you have Adobe Type Manager installed.

Microsoft also distributes updated versions of its core fonts on its Web site at www.microsoft.com/typography/fontpack/default.htm. You can use these TrueType fonts with any Mac OS system.

The LaserWriter 8.6 driver software, which Mac OS 8.5 and 8.5.1 include, performs a euro-related trick with many fonts. It prints a euro symbol from the Symbol font everywhere it encounters an option-shift-2 character in a font internally designated a Mac-encoded font, even if this character appears on screen as an international currency symbol. If the printer has the Symbol font built in and this Symbol font does not contain the euro symbol, the LaserWriter 8.6 driver adds the euro to the printer's existing Symbol font.

Sad to say, older LaserWriter drivers do not normally substitute the euro from the Symbol font. Instead, LaserWriter 8.5.1 and earlier print the international currency symbol wherever an option-shift-2 character appears in a Mac-encoded font.

For more-detailed information, including instructions for adding euro symbols to existing fonts, see Apple Technote 1140 at developer.apple.com/technotes/tn/tn1140.html. **m**

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld Mac OS 8.5 Bible* (IDG Books Worldwide, 1999).

All shareware and freeware mentioned in *Quick Tips* is available from the Macworld Online software library (www.macdownload.com).

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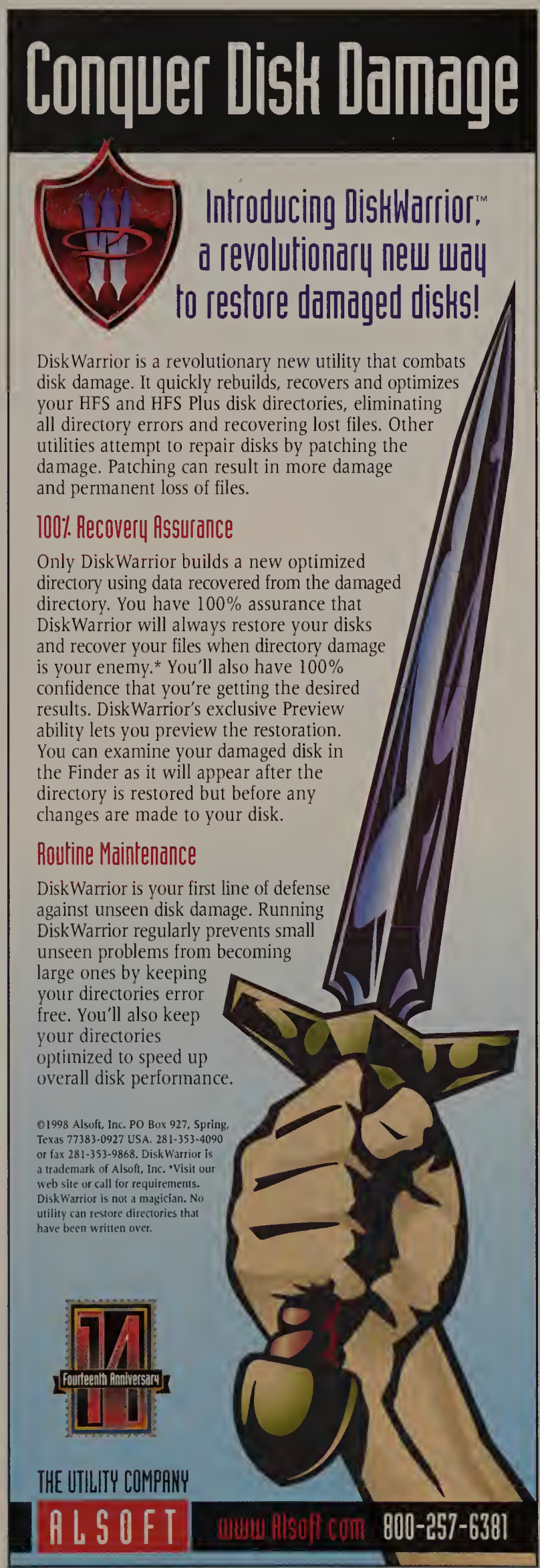

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MOTION

Create

The Taming of Director 7

A GUIDED TOUR OF THIS MULTIMEDIA MONOLITH'S FRIENDLY NEW FEATURES

by Jim Heid

What if I said you could create an interactive project in Macromedia Director without having to write scripts in Director's Lingo language? You'd probably wonder what I was smoking. Sorry, Cheech—with Director 7, it really *is* possible to make multimedia without having to learn a lick of Lingo. Director has always required tiresome scripting to add even a simple navigation button, but Director 7 is a brand-new, friendlier beast that even beginners can use without needing to take a three-day training seminar.

Macromedia has greatly enhanced and expanded Director 7's library of *behaviors*—canned Lingo scripts that you attach to media elements—to make quick work of many authoring chores: navigation, QuickTime-movie playback, and accessing media over the Internet (see *Reviews*, April 1999).

To demonstrate how much easier multimedia authoring is in Director 7, let me guide you through the process of creating an interactive project using the drag-and-drop ease of Director's helpful new features. Along the way, I'll pass along some extra tips for using Director 7. I've additionally created an example project you can download from www.macworld.com/more/. It incorporates an opening screen, a main menu, screens containing text and QuickTime movies, and another screen that dynamically loads a Web page.

DAVID REGAN

Step 1: Import Your Media

The first phase in a Director project often involves importing media—movies, graphics, sounds, and so on—you've created in other programs. As with previous Director versions, you use the File menu's Import command to bring elements into the Cast window, Director's database for holding your project's elements.

continues

You can also import media from the Internet by clicking on the Import dialog box's Internet button and entering a URL. If you choose Link To External File from the Import Type pop-up menu, Director 7 creates a link to the Internet-based media rather than importing the actual file. Then each time the project runs, Director automatically updates the media—perfect for CD-ROMs that retrieve updates over the Web.

TIP You can also import media by dragging and dropping media files from the Finder to the Cast window.

Step 2: Structure the Score

Director's Score window provides a timelinelike view into a project's overall design, with numbered frames that hold media elements, scripts, behaviors, transitions, and more. Normally, Director wants to play a project straight from first frame to last. That's fine if you're simply creating an animation, but it's not suitable for an interactive project where the playback sequence depends on a user's navigation choices.

In previous Director versions, controlling playback usually meant writing Lingo scripts. For example, it was common to write a script that would essentially tell Director, "Play the current frame over and over again until the user clicks on a button; then jump to frame X." Director 7's enhanced behavior library eliminates this manual labor.

Director's Jump To Marker Button navigation behavior relies on *markers*, those handy bookmarklike placeholders you can create in the Score window. Since you'll typically use this behavior throughout projects, it's essential to create markers for each scene in a project (see "Make Your Mark").

TIP Markers are also convenient navigation aids. Using the Markers window or the Score window's Markers menu, you can quickly jump to a section of the Score without having to scroll your way there.

With a feature that debuted in Director 6, you can also use markers to synchronize a project's playback to an audio track. For details, see "Cue Me Up," in "Director 6 Secrets," June 1997.

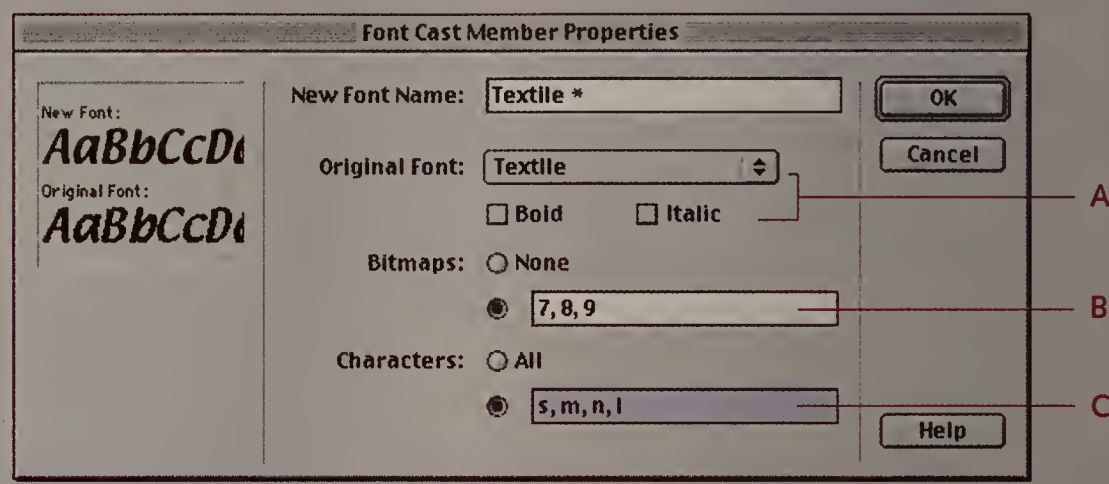
Step 3: Create Your Screens

With your markers made and your media imported, you're ready to create your screens. Use Director's built-in tools to create text headings, bitmapped graphics (see "Embed a Font"), and vector shapes as needed. Drag media elements such as QuickTime movies (see "Easy QuickTime-Movie Playback") from the Cast window onto the Stage or into the Score. When you do, Director creates a *sprite*—a capsule of information—that controls the Cast member's appearance, location, duration, and other properties.

Embed a Font

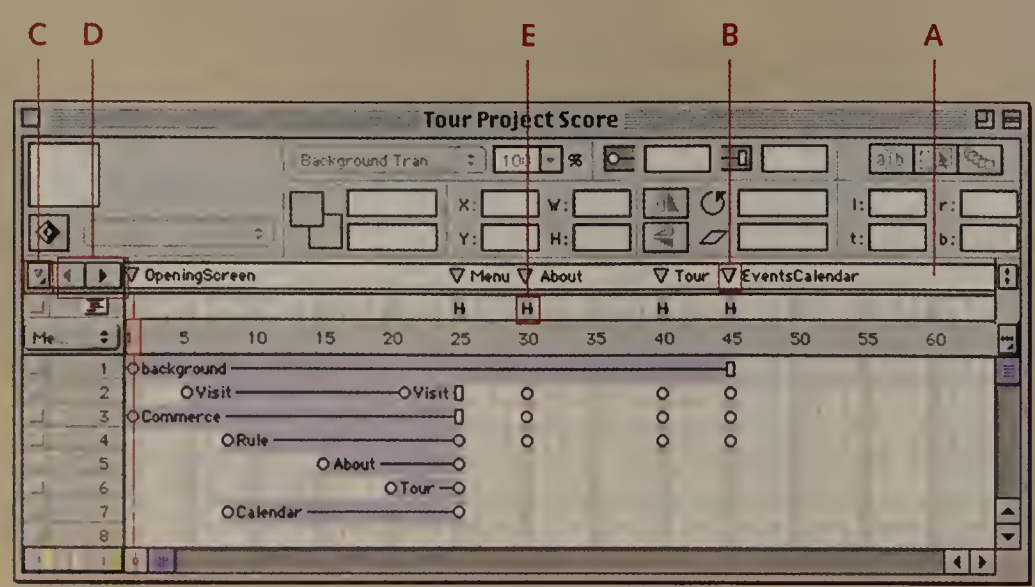
TO ENSURE THAT YOUR PROJECT'S TEXT displays in the desired font, embed that font in your project. Choose Font from the Insert menu's Media Element submenu, and complete the Font Cast Member Properties dialog box.

First, choose the font and style to embed (A). If your project contains text in small point sizes, you can often improve its legibility by embedding bitmapped versions of the font in those sizes. Enter all the point sizes here (B). If small file size is paramount (for Shockwave-destined projects, it usually is), you can embed specific characters only (instead of the entire font) by typing them here (C).



Make Your Mark

MARKERS ARE BOOKMARKLIKE PLACEholders that you create to serve as targets for scripts and behaviors, to help you navigate through a project in progress, and more. To create a marker, click in the Markers channel (A) in the Score window and type the marker's name. To move a marker, drag its upside-down triangle (B). To jump to a specific marker, choose its name from the Marker pull-down menu (C), and to jump to the next or previous marker, click on the arrow buttons (D). The Hold On Current Frame behavior noted under each marker (E) causes the playback to stay in the current frame.



Finally, use the Score window to fine-tune the duration of the sprites. In my example project, most sprites have a duration of just one or two frames—I used behaviors that cause playback to loop on a single frame until the user clicks on a navigation button.

TIP If you know in advance that most sprites will have a specific duration, set Director's preferences accordingly and save yourself some sprite-resizing time. To do so, simply choose Sprite from the File menu's Preferences submenu, and in the Sprite Preferences dialog box, type a number in the Frames text box next to Span Duration.

Step 4: Add Interactivity

With your cast of characters in place, you're ready to attach behaviors to them using the new Library palette. Attaching a behavior to an element generally involves just dragging the desired behavior from the palette and dropping it onto the element (see "Make Buttons Behave" and "Display Updating Web Text").

Some behaviors require additional parameters—the name of the marker to which you want to jump, for instance, or the address of the Web page you want to display. When you attach one of these behaviors, a dialog box for supplying the required parameters appears.

TIP You can (and often must) attach multiple behaviors to a sprite. If you're creating a button that jumps to a marker, for instance, you might first attach the Push Button behavior to control a sprite's

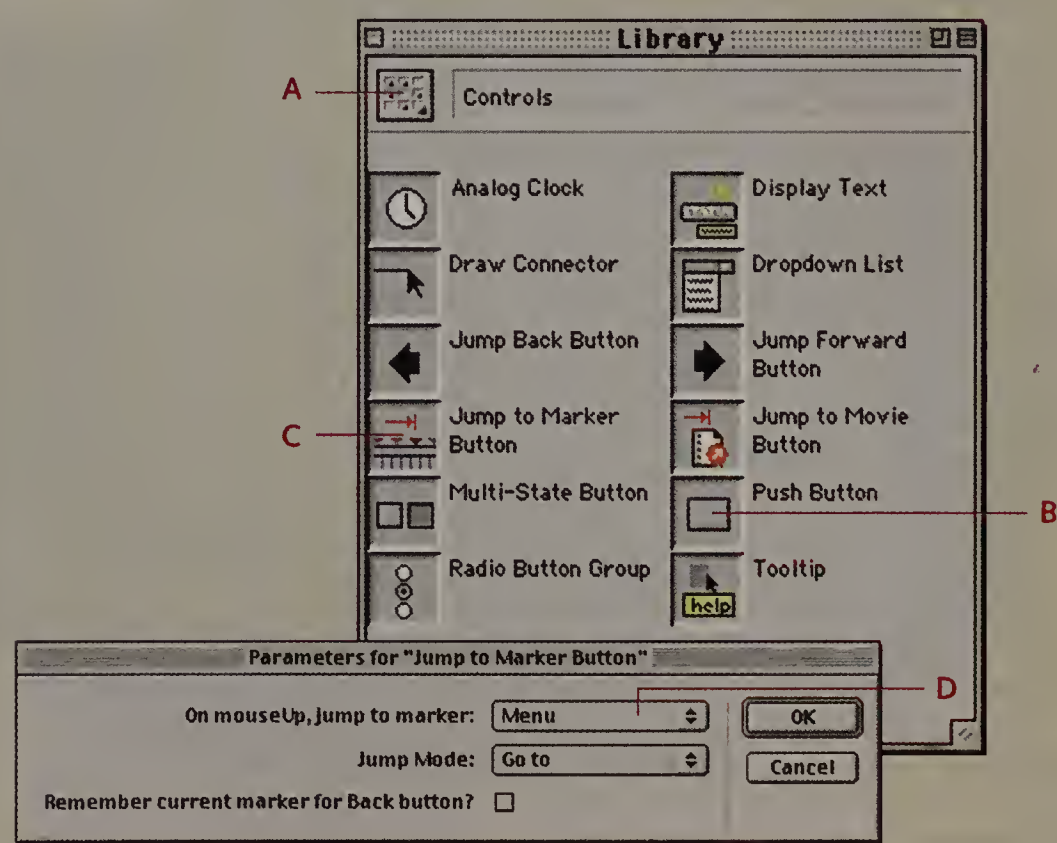
continues

Make Buttons Behave

DIRECTOR 7'S LIBRARY PALETTE IS THE gateway to creating buttons that change when a user mouses over and clicks on them. The Push Button behavior in the Controls category makes it easy to create these *multiple-state* buttons (you can access categories via the Library List pop-up menu [A]).

First, create a separate Cast member for each of the button states you want to implement: normal, mouse-over, mouse-down, and so on. Position the normal-state version of the graphic on the Stage. Then drag the Push Button behavior (B) to the graphic. In the Parameters dialog box, specify the Cast members to use for each state.

Note that the Push Button behavior affects only the appearance of the button—it doesn't actually program a jump to another section of your project. To do that, use one of the Navigation category's behaviors. Or use the Jump To Marker Button behavior (C) in the Controls category: drag the Jump To Marker Button behavior to the button, and choose a marker from the pop-up menu (D) in the Parameters dialog box.

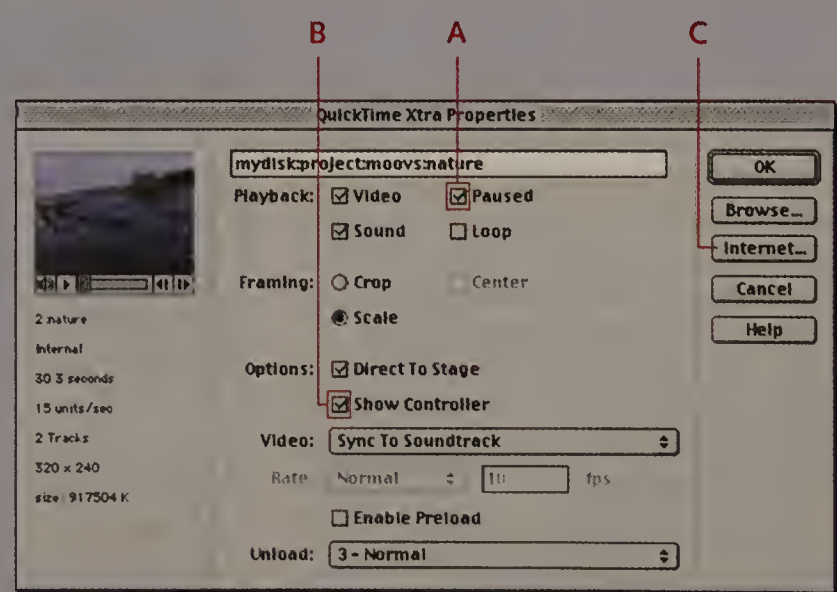


Easy QuickTime-Movie Playback

DIRECTOR 7 PROVIDES A VARIety of ways to play QuickTime movies in a project, and most require working with multiple behaviors or Lingo scripts. But there's an easy way to implement basic movie playback.

First, select the movie in either the Cast window or the Stage window. Choose Properties from the Modify menu's Cast Member submenu. In the Properties dialog box, click on Options and complete the QuickTime Xtra Properties dialog box. To have the movie open but not play immediately, check Paused (A). Then check Show Controller (B) to display the standard QuickTime-movie controller, which enables users to play, pause, and scroll through the movie and adjust its volume.

In order to link to a movie located on the Web, click on the Internet button (C) and type the movie's URL in the subsequent dialog box.



appearance, swapping in different Cast members for rollovers and mouse-down events. Then you might attach the Jump To Marker Button to specify what you want that button to do.

Step 5: Test and Deploy

After you've fleshed out your project's interactivity, you can save it as a stand-alone application (called a *projector*; most commonly used for CD-ROM distribution) or as a Shockwave movie (which can play in a Web browser armed with the Shockwave plug-in).

For Shockwave development, Director 7 includes numerous new behaviors that simplify the tricky process of creating streaming projects (projects that play back as they download). By using these behaviors, you can ensure, for example, that all media required for a particular section load before it plays.

The behaviors you're likely to use most often are the looping and jumping behaviors, which enable you to pause and otherwise control playback while items download. And also experiment with the progress bar and placeholder behaviors—they enable you to provide essential visual feedback to users.

TIP If you're creating Shockwave-destined projects, take advantage of the File menu's new Preview In Browser command. It enables you to assess how your project will behave in a browser.

And speaking of Shockwave, no Web-destined project is complete without a visit to the bundled Aftershock utility. Aftershock not only creates the tags necessary to add a Shockwave movie to a Web page but it also gets rid of some of those annoying "missing plug-in" errors. For example, you can specify that users who don't have Shockwave see a JPEG placeholder image instead.

What's Next?

The process I've outlined here doesn't create a project with the complexities of Myst, but it does incorporate the most commonly used media types and navigation techniques. And as promised, it didn't require a lick of Lingo. Well, actually, I'm lying. The truth is, behaviors *are* Lingo scripts—indeed, they're often extremely complex Lingo scripts. You just don't have to type them in yourself.

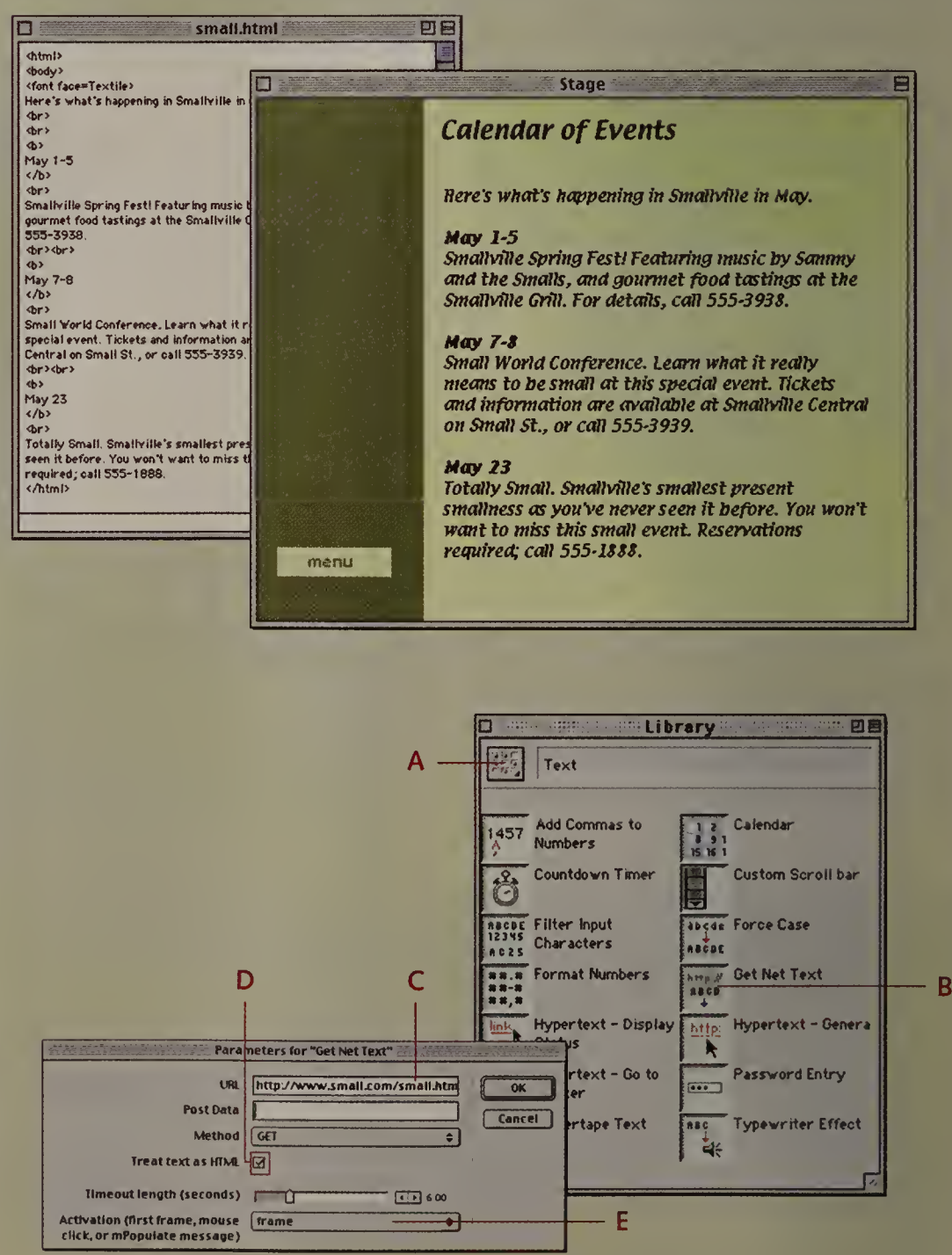
After you've mastered Director 7's behaviors, you should consider exploring the scripts behind them (use the Behavior Inspector to view scripts). They're littered with comments that describe their workings, and studying these remarks can help you when you're ready to move up to the next step: learning Lingo. ■

Display Updating Web Text

THE GET NET TEXT BEHAVIOR (IN THE Library palette's Text category, via the Library List pop-up menu [A]) is your key to creating interactive projects—such as CD-ROMs—that retrieve up-to-the-minute text updates from the Web.

To do this, create a text Cast member containing placeholder text and position it on the Stage. Specify the text box's size in the Sprite Properties dialog box, which you access by choosing Properties from the Modify menu's Sprite submenu.

Next, drag the Get Net Text behavior (B) onto the text box and complete the Parameters dialog box. Specify the URL (C) of the file you want to display. If the file contains HTML formatting tags, check Treat Text As HTML (D). In my example here, I used HTML for basic formatting, such as the bold headings and line breaks. To have the text box update as soon as it appears, choose frame from the Activation pop-up menu (E). The HTML page then appears, formatting intact, within your project.



A contributor to *Macworld* since 1984, JIM HEID (www.heidsite.com) began working with Director when it was called VideoWorks and when the Web was where Charlotte hung out.

Create

The Automatic Publisher

YOU DO THE CREATING—LET APPLESCRIPT DO THE DRUDGERY

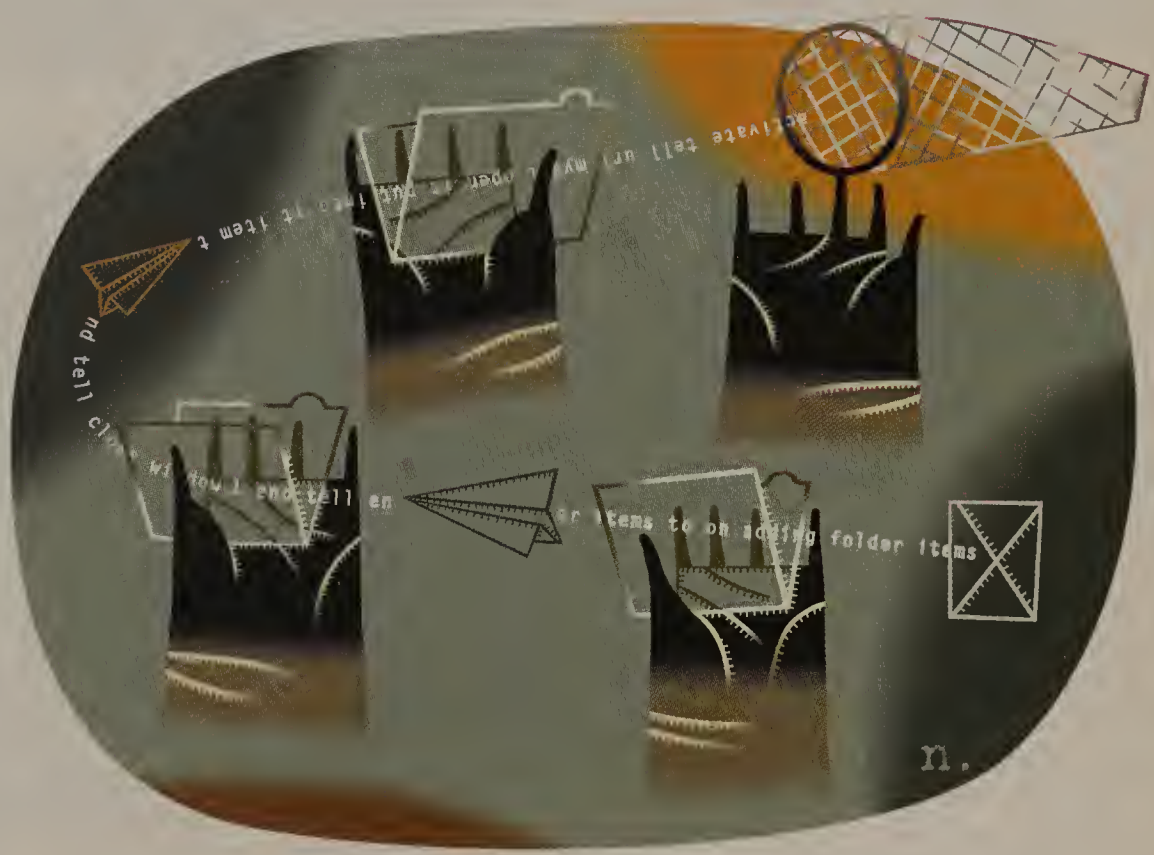
by David Blatner

The Mac is better suited than ever to automating your work, although that wasn't always the case. Ten years ago, if you needed to automate your computer, it was better to get a PC. The Macintosh operating system just wasn't set up for batch processing and scripted automation. But the tides have changed—the Macintosh now ships with the superior automation system.

The key to automating your Mac is AppleScript, which is built into the operating system. AppleScript 1.3 (the version that comes with System 8.5) is finally PowerPC native, which means it's several times faster than it was in older systems. Even better, you can now attach scripts to folders so that when you interact with a folder (for instance, add a file or move the folder's window), the script runs automatically.

With these attached scripts, called *folder actions*, you can trigger a whole sequence of steps simply by dragging a file into a specific folder or by opening a folder. You could, for instance, trigger a script that has your Mac save a piece of artwork as an EPS file in QuarkXPress, rasterize it in Adobe Photoshop, and then place it on your Web server.

In fact, that's exactly what the scripts in this article do (see "From Page to Web").



WHAT YOU NEED

- Apple's AppleScript
- Apple's Script Editor
- QuarkXPress 4.04 or later, or 3.X
- Adobe Photoshop 5
- Main Event PhotoScripter
- File-transfer utility

JEFF NEUMANN

You can use them, with minor modifications, to automate your publishing process.

Have No Fear

Before I dive into the heavy-duty process of scripting QuarkXPress, Photoshop, and a file-transfer utility, let me first show you how simple AppleScript can be. Telling your computer what to do is technically computer programming—but before you panic, remember that AppleScript is different from any other kind of programming. First of all, you don't need any special software to write these kinds of programs. Second, the AppleScript language looks like everyday English.

Keeping the panic under control is important, because AppleScript is an incredibly powerful language that can speed up your work and make your life exponentially better. If you've never programmed before, here's your chance to find out how much fun it is to write something in text and have your computer follow your orders. Try this:

1. Fire up the Script Editor application (you'll find it in the Apple Extras folder on your hard drive unless you've moved or deleted the application). Several commercial applications on the market let you script easier and faster than Script Editor, but this one is free.

2. Type this script:

```
tell application "Finder"
    activate
    open window of startup disk
    set position of window ¬
of startup disk to {30, 50}
end tell
```

3. Finally, click on the Run button in Script Editor to see the script in action.

This script is not only a simple introduction to AppleScript, but also demon-

continues

strates a few of the syntax rules to follow when writing your own scripts. First, you must direct your commands to a particular application or object. This script directs commands at the Finder itself. The word **activate** tells the Finder to become the active, frontmost application. The ¬ character (option-L) means that the command continues on the next line. To specify a position for an object on screen, set the coordinates inside braces. In my example, the script sets the hard drive's window at 30 pixels in and 50 pixels down. Finally, you must match all **tell** operators with an **end tell** command (it's like saying "at ease" to the application).

The more complex the task, the more complex the script. But you can do powerful operations even with simple scripts.

What's Scriptable?

Being able to script the Finder is pretty cool. Being able to script the Finder in conjunction with other programs is awesome. For instance, AppleScript can take a FileMaker Pro database full of information and build a fully formatted catalog or directory in under a minute (this is how some newspapers create their daily television guides and weather information). Similarly, AppleScript can process a folder full of XPress documents, converting all the fake fractions into true ones. AppleScript can even parse your e-mail (in Eudora Pro or Claris Emailer) and take action based on what it finds.

While you can't automate all applications with AppleScript, you can script many key players, such as QuarkXPress. Photoshop is also scriptable, but in a limited way (see "Script Photoshop"). Even by scripting just these programs, you will enhance your productivity significantly.

What about Macros?

The most important difference between scripting and macros is that scripting lets you query the program you're automating. For instance, a script could ask QuarkXPress what the name of the current document is and then type that name into a text box on every page of your document. While macros can be useful, there's no way they can perform a task like this. Go with AppleScript when you need efficiency and power. **m**

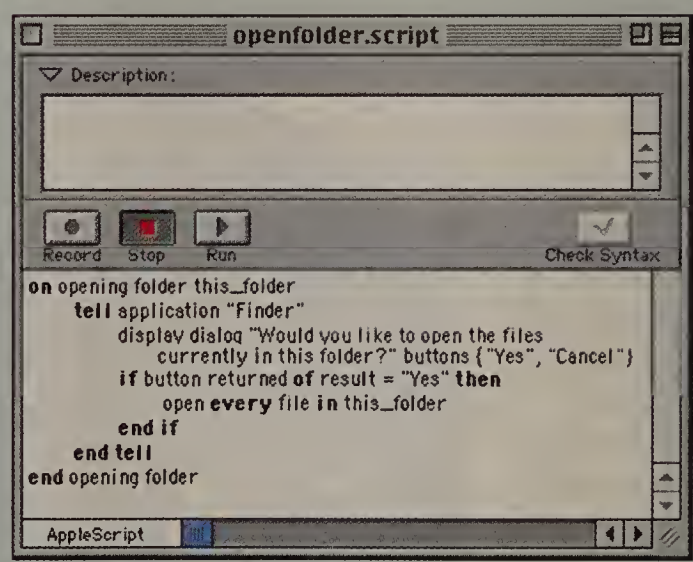
DAVID BLATNER is the author of *The QuarkXPress 4 Book* (Peachpit Press, 1998) and a coauthor of *Real World Photoshop 5* (Peachpit Press, 1999).

Folder Actions

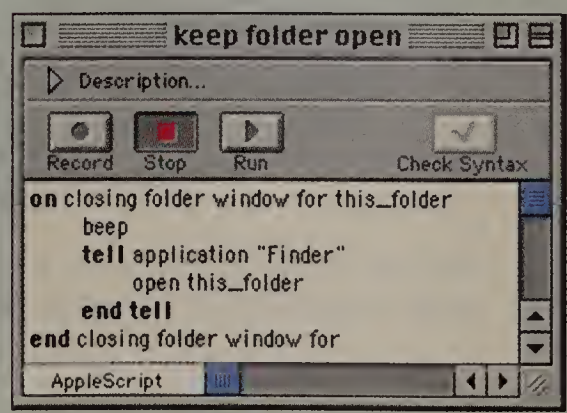
The ability to attach AppleScripts to folders (new in System 8.5) is extraordinary. You can start a script action in any of five ways: open or close a folder, move a folder's open window, and add items to or remove them from a folder.

Unfortunately, the procedure for attaching a script to a folder is a little obscure. You must first write an AppleScript in a program such as Script Editor. Then, add one or more of the special new **on** scripting commands (see the sample scripts here for examples).

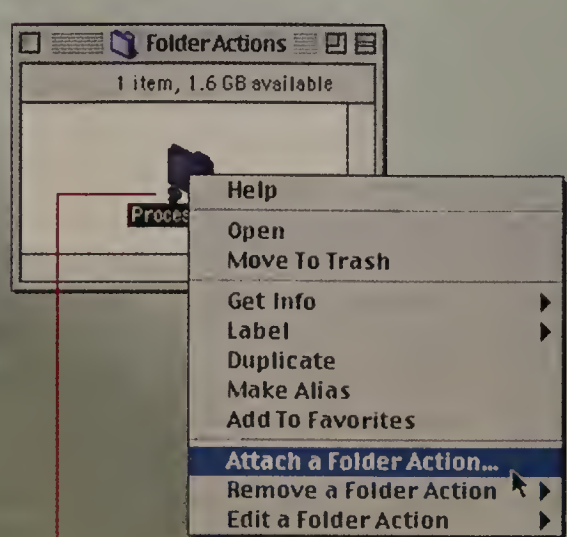
You can get more information about how to write scripts for folder actions by selecting AppleScript Help from the Help menu in Script Editor.



Open Sesame
The Finder is more scriptable than ever. In this example, when you open the folder, the script asks if you want to open the folder's files. It also makes the Finder interactive using the statement *display dialog*. Here, the variable *this_folder* is set automatically to the file path of the folder with the attached script.



Folder Police
Folder actions run *only* on folders that are open or that you are opening. Here's a script that stops anyone from closing a folder you need to keep open.



This symbol tells you there's a folder action attached to this folder.

Attach a Folder
Once you've saved your script to disk, click on a folder with the control key held down and select Attach A Folder Action from the context-sensitive menu. Remember that you can attach more than one script to a folder. If you want to edit or detach the script later, there are items in the context-sensitive menu for that, too.

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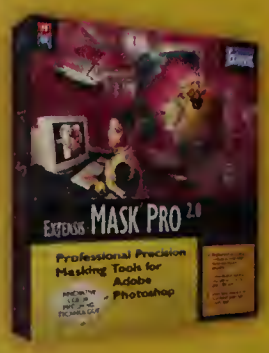

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From Page to Web

EVEN BETTER THAN AUTOMATING A SINGLE MUNDANE task is automating an entire workflow. The scripts here show how you can automate the process of converting a QuarkXPress document into a Web-ready file, using AppleScript, QuarkXPress, Photoshop, Dartmouth College's Fetch, and Internet Explorer. The specific process I'm illustrating is updating a Web page with an ad created in QuarkXPress.

It's easy to get an ad in XPress onto the Web even without AppleScript: just save the ad as an EPS file, rasterize it (turn it into a bitmap) in Photoshop, save it to disk as a GIF or JPEG, and put it on your Web server. But if you had to change the ad everyday, this process would soon get tiresome—so why not automate the workflow?

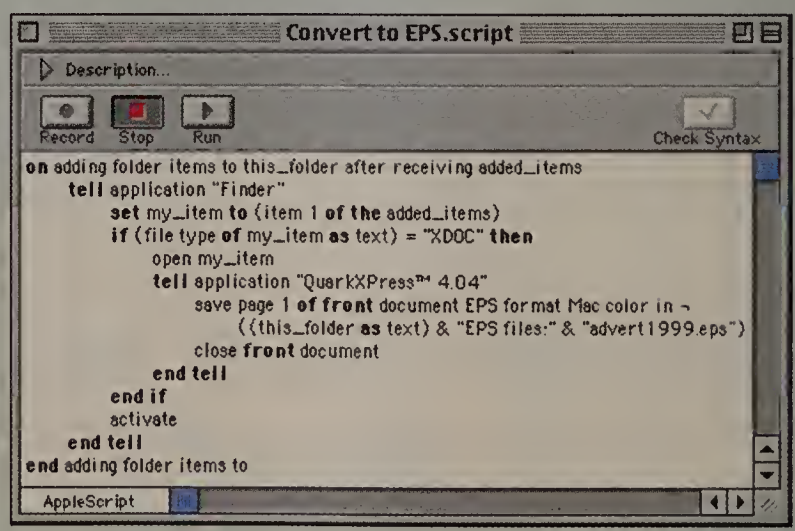
I built this workflow with three scripts, each attached to a folder using System 8.5's new Folder Actions feature (see "Folder Actions"). These *hot folders* automatically run their scripts when you drop one or more files into them.

Note that while the scripts shown here will work "off the shelf," they won't work in all circumstances. You can download the full versions of the scripts, which are more robust and less likely to break, from www.macworld.com/more/. You can modify the scripts to fit your needs or study them to learn basic concepts about creating your own. Don't forget some other important sources of information in your quest to learn more about AppleScript: Apple's AppleScript Page (www.apple.com/applescript/), the AppleScript Sourcebook (www.AppleScriptSourcebook.com), Everything CD for Mac Scripting (www.everythingcd.com/scripting/), and Scripting on the Web (www.scriptweb.org).

1 Script QuarkXPress

QuarkXPress is ideal for making simple ads because it has great typographic features and lets you repurpose content that you've already used in print materials. XPress is also one of the most scriptable and scripted applications on the Mac. Here I've built an ad in a document that is the same size as the ad itself so that I won't need to worry about cropping it later. After building the ad, the first step is to export it as an EPS file from QuarkXPress. Here, the script reads *item 1 of added_items* in case someone drags more than one file into the folder. If the file is an XPress document, the script exports the first page as an EPS file and then closes the document.

If you want to script XPress 4, make sure you're using version 4.04 or later (earlier versions were too buggy to bother with). Also note that many scripts that worked with QuarkXPress 3.X require modifications to work with XPress 4, because of the way the newer version handles boxes (especially Bézier boxes).



XPressly Stated The first script tells the Finder to open the ad in XPress, and tells XPress to save the ad as an EPS.

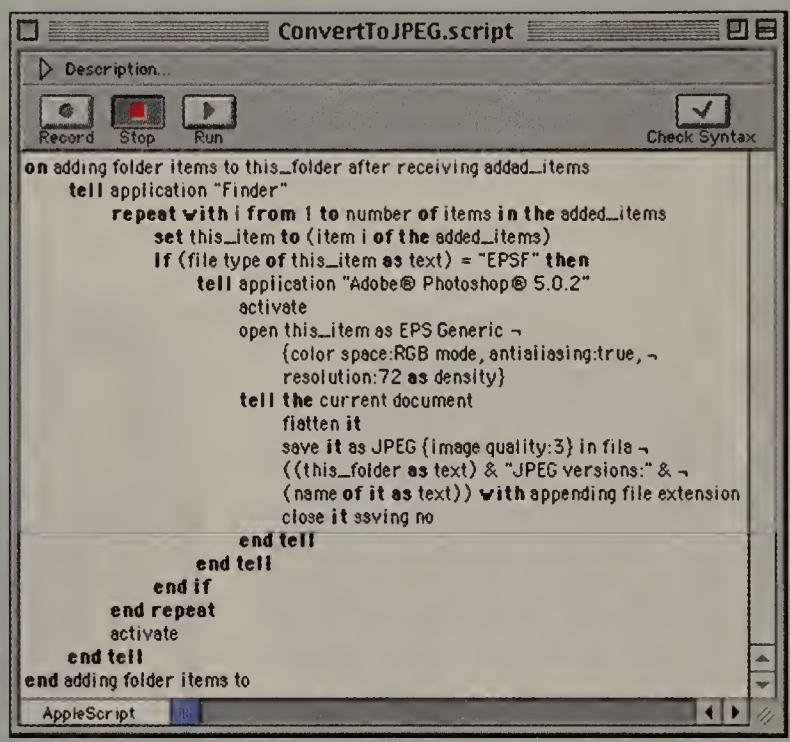
Daily Ad You never have to touch the ad. The script opens QuarkXPress and does the work for you.

❷ Script Photoshop

People who script have clamored for Adobe to make Photoshop AppleScriptable for years. Unfortunately, the cries have fallen on deaf ears, and Photoshop lets you use scripting only to open files (using the *open* command) and run premade Photoshop Actions (using the *do script* command). Photoshop also lets you batch-process a folder of images using one or more Actions, but only from within the program, not via scripting. While you can do a lot within these constraints, they leave much to be desired. Fortunately, Main Event (www.mainevent.com) has released PhotoScripter, a plug-in that adds scripting functionality to Photoshop 5.

Photoshop's Actions are easy to create, but PhotoScripter beats them out in several ways. For instance, the second step in my workflow (converting the EPS file to a JPEG) would be impossible to do as an Action.

When attached to a folder, this AppleScript uses the EPS Generic filter to open in Photoshop any EPS files that appear in the folder. You can control all the important properties of the Open As Generic EPS dialog box here: color space, antialiasing, and size.



Permission to Rasterize This script opens the ad in Photoshop, flattens it, saves it as a JPEG file in the JPEG Versions folder, closes the rasterized image, and moves on to the next image.

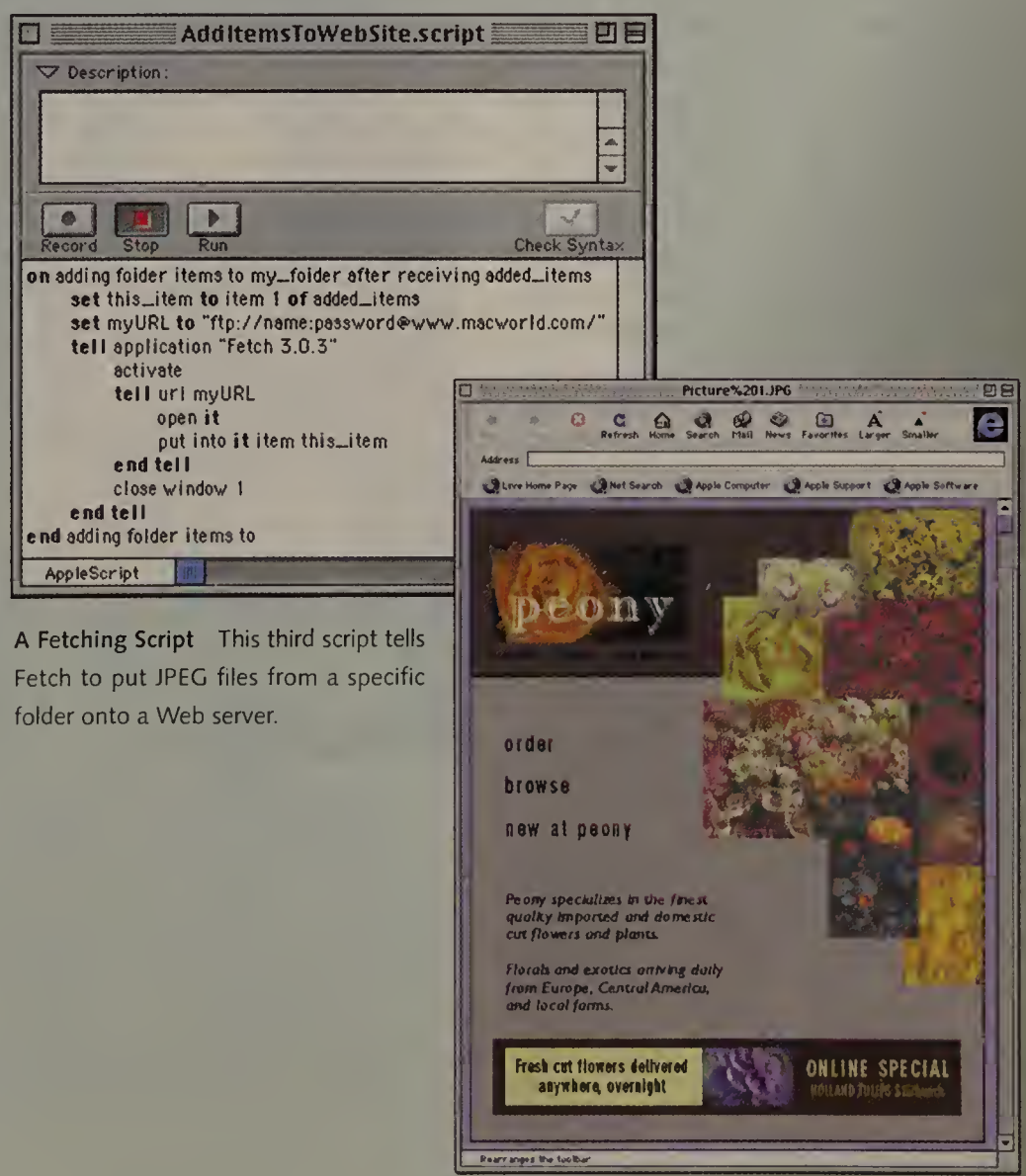
❸ Automate the Transfer

The final step in this automated workflow is to get the new JPEG image onto my Web server. Fortunately, you can script both Fetch and Stairways Software's Anarchie Pro (these file-transfer utilities are shareware, available at online sites, including www.macworld.com). In my sample script, I use Fetch. This script, also set up as a Folder action, launches as soon as the JPEG file drops into its folder, immediately uploading it to the proper folder on the Web site. (You should replace this Web site with your own, of course.)

The script doesn't have to end here. For example, you could add another line at the end of the script that reads:

tell application "Internet Explorer 4.01"
openURL "http://www.macworld.com/" ¬
& "myfolder/myfile.html" ¬
Flags 1
end tell

This would open the proper HTML file in Explorer so you could make sure your ad looked correct on the final page.



A Fetching Script This third script tells Fetch to put JPEG files from a specific folder onto a Web server.

Create

GRAPHICS

Digital Art Unplugged

MAKING IMAGERY THAT BELIES ITS ELECTRONIC ORIGINS

by Mike Wooldridge

For digital artists trying to achieve the look-and-feel of traditional-media art techniques, the real challenge becomes blending and altering elements to make the final piece look as though it was created with paint and pen rather than by pixel pushing.

San Francisco–based illustrator and graphic artist Frank Kozik has experimented with Photoshop filters over the years to make the elements he uses in his art—cartoon drawings, photographs, synthetic textures, and found images—look painted rather than digital. His goal with many of his designs is not to create fantastic, slick imagery that's obviously computer-based but to make art that looks like it comes from the nonelectronic world.

Kozik has been creating concert posters and album-cover art for underground bands since the mid-1980s. His posters featuring Soviet-style soldiers, Lichtensteinian women, and cartoon characters have become prized collectibles, and some of his poster art is in the Smithsonian Museum. But he's probably best known to Macintosh users for his in-your-face illustrations for now-defunct Macclone maker Power Computing.

In this piece, Kozik says, he was trying to imitate the look-and-feel of an old, weathered billboard with its layers of art in various states of decomposition. He started with several of his favorite elements: hand-drawn cartoon characters, a cross and an American flag created in Adobe Illustrator, and scans of found art. He added filter effects in Photoshop to soften the edges and add texture and selected and eliminated random parts of each image, using the magic-wand tool and layer masks to create a splattered-paint look. Then he scanned in and distorted an oil painting and superimposed it at a very low opacity on the rest of the art.

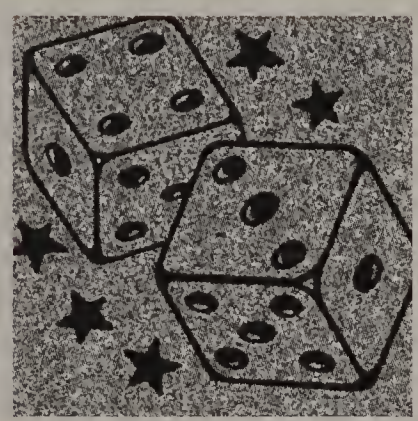
Although the art looks "natural," Kozik's setup for this project was mostly digital: a Power Computing PowerTower Pro 225; 1GB of RAM; a 14GB Bellstor external hard drive; an external Iomega Jaz drive; two Sony Trinitron monitors (20- and 21-inch); Adobe Photoshop 3.0; Adobe Illustrator 6.0; Adobe Streamline 4.0; Adobe Gallery Effects; and Tormentia Photoshop filters, included with *Macworld Photoshop 5 Bible* (IDG Books Worldwide, 1998). m

The Natural Look Using found art, hand-drawn images, and a mixture of Photoshop filters, artist Frank Kozik imitated the look of a weathered billboard with its layers in various states of decay.

FRANK KOZIK

MIKE WOOLDRIDGE (www.mediacosm.com) is a freelance writer and new-media designer based in Berkeley, California.

1 Kozik began the project with seven graphic elements. He hand-drew and scanned in the cat's-head illustration and created the American flag, military cross, flames, and "Man's Ruin Records" text in Illustrator. He scanned in the dice and wolf images from 1950s decals found at an antique store. Kozik imported all these elements into separate Photoshop files.



MAN'S RUIN RECORDS

2 To soften the hard edges and give texture to the flat areas of color and gradients, he applied to each separate file Photoshop's Add Noise filter and the classic Dry Brush filter from Adobe Gallery Effects (filters included in Photoshop 4 and later).

3 Next, he used a Tormentia filter to adjust the colors of each element in its separate Photoshop file so they would complement each other in the final image. He followed this up with another dose of the Dry Brush to amplify the earlier textures and give the elements even more of a painted feel.

4 Kozik then brought each element into separate layers of a single Photoshop file. Working on one layer at a time, he selected random areas of the illustrations, using the magic-wand tool followed by the Similar command, and deleted the selected areas via the layer mask. You can see the splattered-paint results of this technique in the pair of wolves' heads. He also lowered the opacity in some layers to reveal images in lower layers.

5 Kozik's final step was to scan and invert a randomly selected image—an oil painting of clowns scanned from the cover of a 1970s English magazine—and add lots of random noise to it. He superimposed this over the final collage at a low opacity to add an extra element of texture.

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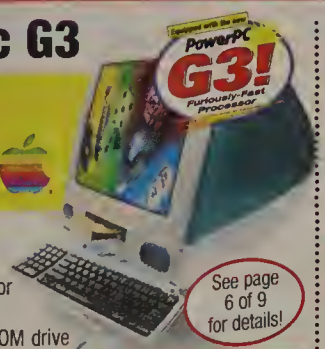
APPLE iMac G3

Only **$799!***

Item # RCPU1260



- 233MHz PowerPC G3 processor
- 32MB RAM (256MB max.)
- 4.0GB hard drive • 24X CD-ROM drive
- Built-in 15" color monitor
- 56K modem

*Product is reconditioned by an Apple Authorized Service Provider. Reconditioned computers may not include original application software. 90 days parts and labor warranty. All sales final. While supplies last.

See page 6 of 9 for details!

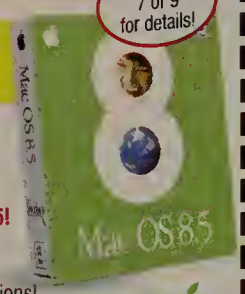
Many other reconditioned Apple systems available. Call for details.

MAC OS 8.5

As low as **$89.95!***

Item # SYS0292

See page 7 of 9 for details!



FREE** Cyber Patrol, Solitaire Mania, Art Mania 10,000, Virex, & Compton's Interactive Encyclopedia when you purchase Mac OS 8.5! Ask for Item # AAA0735.

- New PowerPC native AppleScript — runs five times faster than previous versions!
- New Sherlock "Find"— easily search the Web with multiple search engines and instantly get results!

*Price after MacWAREHOUSE $10 mail-in rebate. Price before rebate is $99.95. Offer expires 5/15/99. Limit one rebate per customer (or total of 5 rebates per customer site). Rebate coupon and full details available at www.appleos85.warehouse.com or call customer service at 1-800-390-0706.
**$3.95 shipping and handling applies. Shipped in promotional packaging. While supplies last.

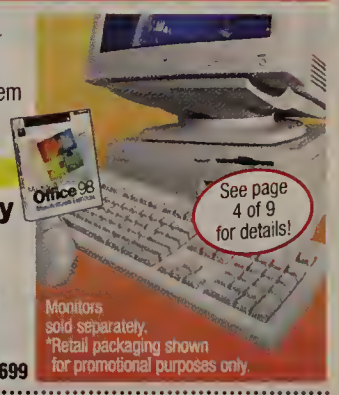
WHILE SUPPLIES LAST! POWER MAC G3/266MHZ

- 266MHz PowerPC G3 processor
- 64MB SDRAM (768MB max.)
- 4.0GB HD • 24X CD • 56K modem
- 512K backside level 2 cache
- 10Base-T Ethernet
- Includes Microsoft Office 98*

Was ~~$1599~~: Now only **$1499!**

Item # CPU1264

CPU1276: Power Mac G3/266MHz with Zip Drive ..... only $1699



See page 4 of 9 for details!

Monitors sold separately. *Retail packaging shown for promotional purposes only.

NEW LOW PRICE! STYLUS 740 PRINTER

Only **$249.95!** was ~~$279.95~~

USB Compatible!

Item # PR14065

- 1440 x 720 dpi
- USB and Mac compatible
- 6ppm black/5ppm color
- Smaller ink drops for amazing detail

See page 2 of 9 for details!

EPSON®

SONY MAVICA FD-91 DIGITAL CAMERA

Only **$999.95!**

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- 14X zoom
- 2.5" LCD
- Auto flash
- 1024 x 768 resolution
- 3.5" floppy storage

SONY.

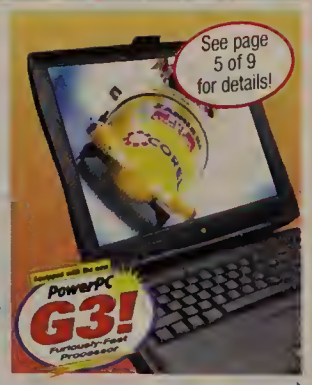
PRICE SLASHED $300! POWERBOOK G3/233MHZ

- 233MHz PowerPC G3 processor
- 32MB SDRAM (192MB max.)
- 2.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 14.1" active-matrix color display

Now only **$2199!** was ~~$2499~~

Item # CPU1238

While supplies last!



See page 5 of 9 for details!

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Now only $249.95!
was: ~~$279.95~~
PR14065

- 1440 x 720 dpi w/smaller ink drops
- 6ppm black; 5ppm color
- USB compatible

EPSON — iMac Add-on!

Iomega Zip® USB Value Pack

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BND3035

Includes:
- Translucent blue Zip drive
- 10 color disks
- Carrying case
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iMac Add-on! — iomega

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HEWLETT PACKARD — Expanding Possibilities

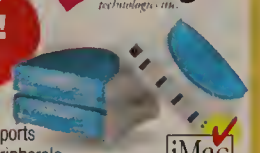
- 5ppm black; 1.7ppm color
- 600 dpi black; 600 x 300 dpi color
- iMac G3 USB compatible only
- Manufacturer's 1-year warranty

iMac Add-on!

iMac USB Hubs

As low as $79.99!
DEH4075

entrega. technologies, inc.



- Provides 4 to 7 additional USB ports for expanding your peripherals.
- Matching iMac color case

iMac Add-on!

DEH4075: 4-port USB iMac hub.....$79.99
DEH4074: 7-port USB iMac hub.....$99.99

Astra 1220u Duo Color Scanner

USB compatible

As low as $129.95!*
IN7260

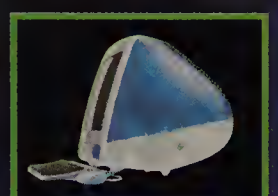
UMAX

- 600 x 1200 dpi resolution
- 36-bit with 10-bit A/D converter

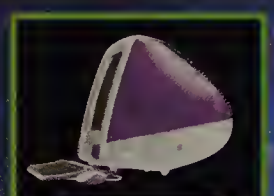
iMac Add-on!

*Price after $20 manufacturer's mail-in rebate. Price before rebate is $149.95. Ask for coupon # AA1203. Offer expires 4/30/99.

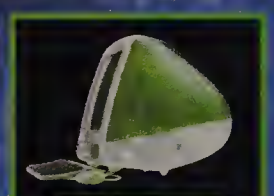
NEW iMac/266MHz – available in 5 colors!



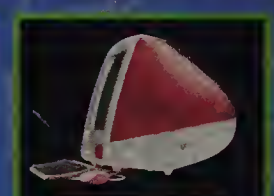
Blueberry CPU1292



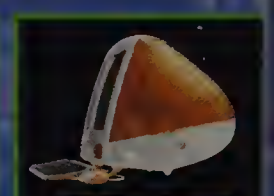
Grape CPU1293



Lime CPU1294



Strawberry CPU1295

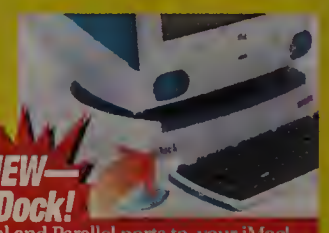


Tangerine CPU1296

iMac 233MHz BLOWOUT!

Now only $899!

Ask for item # CPU1260.



NEW— iDock! Adds Serial and Parallel ports to your iMac!

iMac 233MHz/4.0GB HD/original Bondi Blue
Ask for item # CPU1260 ..Leaselt! for only $32/mo.§ **Only $899**

iMac 233MHz/4.0GB/original Bondi Blue with additional 64MB RAM (not installed)
Ask for item # CPU1261 ....Leaselt! for only $37/mo.§.... **only $1068.95**

iMac 233MHz/4.0GB/original Bondi Blue with additional 64MB RAM INSTALLED
Ask for item # CPU1262....Leaselt! for only $38/mo.§ .... **only$1098.90**

NEW! iDock, from CompuCable, expands iMac's connectivity. iDock is a swivel base with an Integrated 3-port USB Hub plus 2 Apple Serial/Geo Ports and 1 Parallel Port. With iDock, iMac can be connected to native Mac serial devices and multi-platform parallel devices. iDock is molded in Bondi Blue to match iMac perfectly.

Ask for item # DEH4254 ..... **$199.99**

CompuCable iSpeakers for iMac
Ask for item # EX9774 ..... **$34.99**

§ Leases are only available to business customers with approved credit on product orders where at least one product totals $750, or more. Lease payments are based on a 36-month, Fair Market Value. Call today to see how you can qualify. Lease terms are subject to change.

Art Explosion 250,000

nova Max

$69.95!*
with iMac purchase
Item # AAP0587

Save $30!**

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250,000 quality clip art Images on 23 CD-ROMs. Includes 1,300 page catalog for quick reference.

*Save $30 when purchased with an iMac. Products must appear on same invoice. Shipped in promotional packaging. While supplies last.

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Broderbund®

- Challenge your puzzle-solving skills in the Island world that is Myst!

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A $29.95!** Value

iMac Add-on!

*$3.95 shipping and handling applies. Shipped in promotional packaging. Hurry! Offer good while supplies last.

PAGE 2 OF 9

ORBIT USB FOR MAC — KENSINGTON

Only $34.95!* w/iMac or new Power Mac G3 purchase

$15 mail-in rebate!

Ask for item # AAP0600.

- Designed specifically for use with USB
- Fits the natural shape of your hand, ideal for both left and right-handed users

iMac Add-on! — USB compatible

*Price after manufacturer's $15 mail-in rebate. Limit two rebates per address. Orbit and iMac or new Power Mac G3 must appear on the same invoice. Offer good 4/1/99 through 9/30/99.

BROTHER HL-1040 LASER PRINTER

Only $379.95! NEW!

USB compatible

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- Includes USB connectivity kit for the iMac
- Fast! Prints 10ppm
- 600 x 600 dpi resolution

brother — iMac Add-on!

iMAC ACCESSORY KIT

iMac Add-on!

Only $49.99!

Save $30!**

Ask for item # DSP1642.

- **Includes:** SurgeMaster surge suppressor, iMac CD holder (holds 10 CDs), ErgoPad Premiere wrist rest, ErgoPad Premiere mousepad.

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iMac G3 as low as $899!

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CALL FOR A FREE FULL-COLOR CATALOG!

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New! 266MHz iMac!

Only $27.45 a month†

The brand new 266MHz iMac blows the doors off anything else on the information superhighway!

- 266MHz PowerPC G3 Processor
- Built-in 15" Color Monitor (viewable size: 13.8")
- 32MB (256MB max.) • 6.0GB hard drive
- 512K Backside Level 2 Cache • 6MB of Video RAM
- Built-in 24X CD-ROM drive
- Built-in 56Kbps Modem • Mac OS 8.5
- Built-in 10/100Base-T Ethernet

See the complete line of G3s at
www.apple.warehouse.com

Visit us at:
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for our full selection of great games for the Mac!

Mac Games Warehouse

Blueberry: item # CPU1292!
Grape: item # CPU1293!
Lime: item # CPU1294!
Strawberry: item # CPU1295!
Tangerine: item # CPU1296!

Only $1199

Leaseit! for only $42/mo.**

**67 monthly payments of $27.45. 14.89% Annual Percentage Rate subject to increase or decrease. Payments deferred for the first 120 days subject to interest of $32.71 and a loan origination fee of $49.96 charged on day 91. No prepayment penalty. Subject to approval of credit. Based on Estimated Retail Price of $1,199. Tax and shipping not included.

iMac SuperDisk USB Drive

IMATION

Only $149.95!
DRI2793

- 120MB capacity
- USB interface for easy plug and play, hot-swappable storage
- Reads and writes 3.5" diskettes

iMac Add-on!

Imation LS-120MB SuperDisks as low as $7.99 each in 10-pack with drive purchase. Ask for item #BN6308.

Farallon EtherMac iMac iPrint Adapter

Only $109.99!
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- Connects your iMac to LocalTalk printers and other Macintosh computers
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iMac Add-on!

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MacWarehouse Exclusive $30 rebate!

Only $99.95!*

NEW!

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- Translucent blue! • 36-bit color

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Only $29.95!*
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Save $50!**

- Offers 20% better compression than previous versions

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Save $30!**

Only $69.95!*
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AAP0586

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iMac FAMILY COLLECTION

4 great learning titles the whole family can enjoy for only
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when you purchase an Apple iMac G3.
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Includes: Grolier Encyclopedia 98, Mavis Beacon Teaches Typing 5.0, PrintMaster Gold Suite, and Math Blaster Jr.

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Get 3 great gaming software titles to enjoy for only
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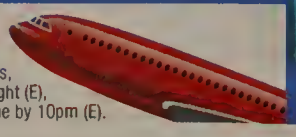

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BestData 56K USB Modem

Only $99.99! DMD4188

USB compatible

- 56,000 bps modem delivers data throughput up to 230,400 bps
- Mfr's 5-year limited warranty

BEST DATA

USB 56K V.90 Speakerphone: Item # DMD4187. . . . . ONLY $119.99!

100MB Zip USB Drive

Only $129.95! DR9464

New!

- Translucent ice blue
- USB compatible, works with your iMac!

USB compatible

iomega

Iomega 100MB Zip Disks

Only $8.99! each, in 60-pack (gray)

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Only $1199.95! IN7515

- 1280 x 1024 ppi resolution
- 3X zoom with TTL SLR viewfinder

8MB SmartMedia card included!

OLYMPUS

Accessories Kit: Includes leather camera case, 8MB SmartMedia Card, rechargeable batteries and recharger, AC adapter and software. Item # AC23606. . . . . ONLY $199.95!

16MB SmartMedia Cards

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- Digital film for digital cameras
- Compatible with most new digital cameras

NEW! Apple Power Mac G3s

Design, Features, and Speed You've Never Seen Before!

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APPLE 17" MONITOR Only $499! Item # MON0786

ALL NEW POWER MAC G3s INCLUDE:

- Built-in ATI Rage 128 graphics card with 16MB of SDRAM graphics memory
- NEW! Two ultra-fast FireWire ports — much faster than SCSI ports, and together they handle up to 63 devices
- Two USB ports — handle up to 127 USB peripherals
- 100MHz System BUS • One ADB port
- Built-in 10/100Base-T Ethernet connector

300MHz PowerPC G3/64MB SDRAM/6.0GB hard drive/24x CD-ROM drive/512K Backside Level 2 Cache CPU1282 . . . Leaseit! for $56/mo.§ $1599

G3 PowerPC

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Monitors sold separately.

NEW! POWER MAC G3/350MHZ MINITOWER

- 350MHz PowerPC G3 processor
- 64MB SDRAM (1.0GB max.)
- 6.0GB hard drive
- DVD-ROM drive (5X DVD/32X CD)
- 1MB Backside Level 2 Cache

Only $1999! Item # CPU1283

DVD ROM

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NEW! POWER MAC G3/350MHZ MINITOWER

- 350MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
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- 1MB Backside Level 2 Cache

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- 400MHz PowerPC G3 processor
- 128MB SDRAM (1.0GB max.)
- 9.0GB Ultra 2 SCSI hard drive
- 24X CD-ROM drive
- 1MB Backside Level 2 Cache

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- 128MB SDRAM (1.0GB max.)
- 9.0GB Ultra 2 SCSI hard drive
- 24X CD-ROM • AppleShare 6.1
- 1MB Backside Level 2 Cache

Only $3299! Item # CPU1286

Leaseit! for only $114/mo.§

400MHz PowerPC G3 Server/256MB SDRAM/Two 9.0GB Ultra 2 SCSI hard drives/ 24X CD/1MB backside L2 cache CPU1287 . . . Leaseit! for only $173/mo.§ . . . $4999

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- Overnight delivery just $9.95 per order up to 5 pounds. For all orders over 5 pounds, shipping is $9.95 plus an additional $1.75 per pound or fraction thereof. (Example: shipping for a 6 pound order is $11.70). Please add an additional $3.00 for all orders $50.00 and under.
- Orders for "in-stock" items placed on weekdays up until 12:00 midnight (E), 10:00 pm (E) for Internet orders, ship same day for overnight delivery (barring system failure, etc.). We anticipate being able to ship "out-of-stock" items within 30 days.
- All items we sell come with the MacWAREHOUSE 30-Day Guarantee Against Defects. Call our Customer Service Department at 1-800-925-6227 for a Return Merchandise Authorization (RMA) number within 30 days of the original invoice date. Defective software will be replaced immediately upon receipt of the defective product. Defective hardware will be replaced or repaired at our discretion, except for products from Apple 1-800-SOS-APPL (1-800-767-2775), or Tektronix (1-800-835-6100). These manufacturers must be contacted directly, and will repair or replace products at their sole discretion. Should you return hardware to MacWAREHOUSE from Apple or Tektronix, you will be assessed a 15% restocking fee which will be charged to your account. All returns are subject to the following: 1. All products must be returned in original packaging. 2. Shipping and handling charges are not refundable. 3. Software and consumables are not refundable unless returned unopened in original packaging with documentation. 4. Custom orders and cables are not refundable. 5. Products designated as "all sales final" are not refundable.

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We accept these major credit cards.

§ Leases are only available to business customers with approved credit on product orders where at least one product totals $750, or more. Lease payments are based on a 36-month, Fair Market Value. Call today to see how you can qualify. Lease terms are subject to change

WAREHOUSE.com

Power Mac G3s as low as $1599!

Power Mac G3/300MHz Minitower. See left page for details.

Newer Technologies • Global Village • VST Technologies

Apple PowerBook Prices Slashed!

PRICE SLASHED $300!

Now only **$2199!**

WAS ~~$2499~~. ASK FOR ITEM # CPU1238.
Leaseit! for $76/mo.[5]

- 233MHz PowerPC G3 processor • 32MB SDRAM
- 2.0GB hard drive • 20X CD-ROM drive
- 56K modem • 10Base-T Ethernet
- 512K Backside Level 2 Cache
- 14.1" active-matrix color display

32MB G3 MEMORY UPGRADE for PowerBook only $159.95! Ask for item # CHP9820.

Floppy drive sold separately.

APPLE POWERBOOK G3/266MHZ

- 266MHz PowerPC G3 processor
- 64MB SDRAM • 4.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB Backside Level 2 Cache
- 14.1" active-matrix color display

PRICE SLASHED $300!

Now only **$2699!**
was ~~$2999~~
Item # CPU1239
Leaseit! for only $94/mo.[5]

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APPLE POWERBOOK G3/300MHZ

- 300MHz PowerPC G3 processor
- 64MB SDRAM • 8.0GB hard drive
- 20X CD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB Backside Level 2 Cache
- 14.1" active-matrix color display

PRICE SLASHED $1000!

Now only **$2999!**
was ~~$3999~~
Item # CPU1259
Leaseit! for only $104/mo.[5]

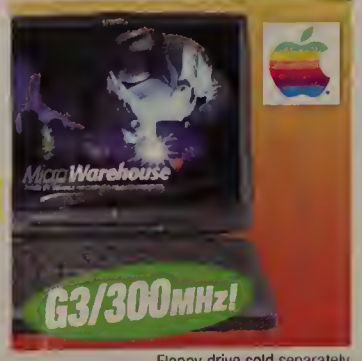
Floppy drive sold separately

APPLE POWERBOOK G3/300MHZ DVD ROM

- 300MHz PowerPC G3 processor
- 64MB SDRAM • 8.0GB hard drive
- DVD-ROM drive • 56K modem
- 10Base-T Ethernet
- 1MB Backside Level 2 Cache
- 14.1" active-matrix color display

PRICE SLASHED $900!

Now only **$3499!**
was ~~$4399~~
Item # CPU1240
Leaseit! for only $121/mo.[5]



Floppy drive sold separately

NEW! VST ZIP 100 DRIVE

- For PowerBook G3 Series
- Bootable (Mac OS 8 boot disk provided)

Internal as low as $199.95!*
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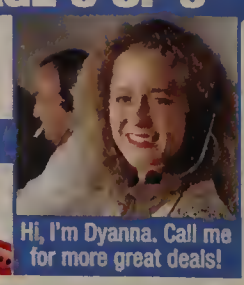

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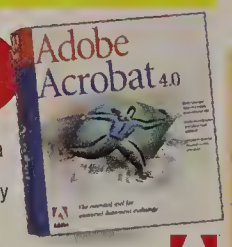

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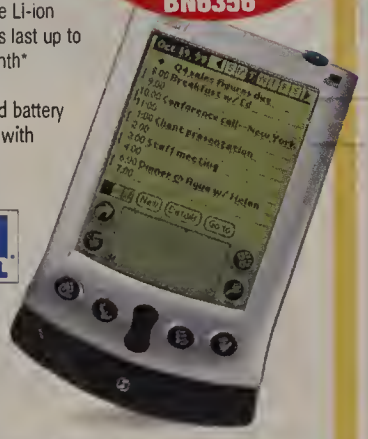

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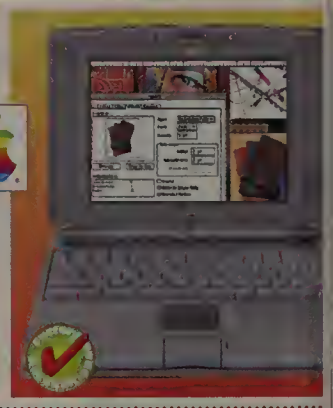

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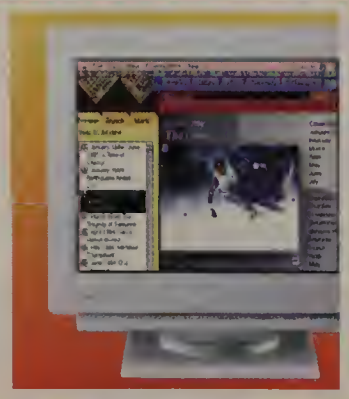

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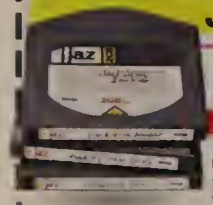

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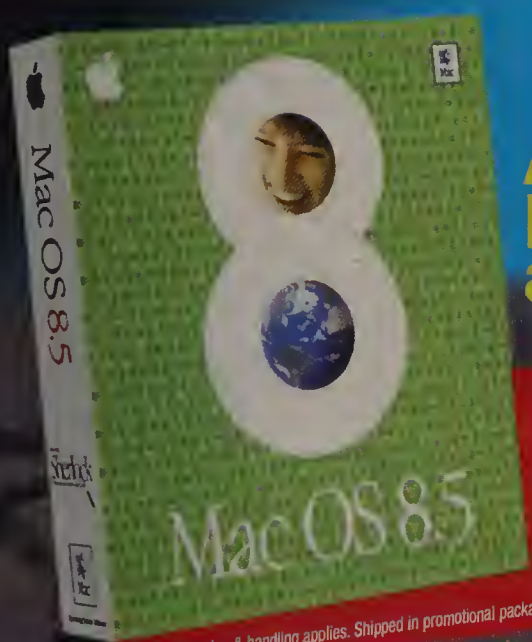

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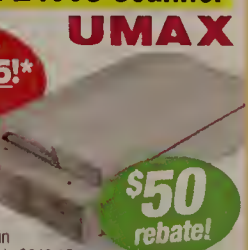

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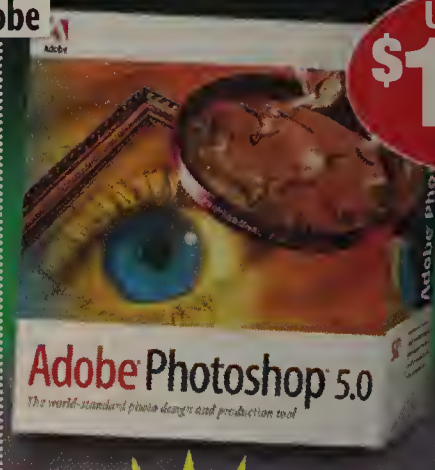

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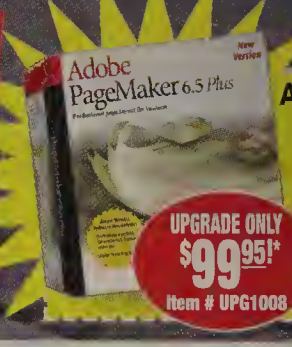

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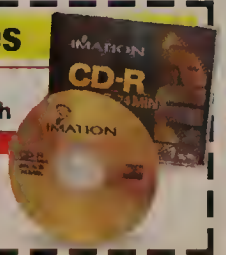

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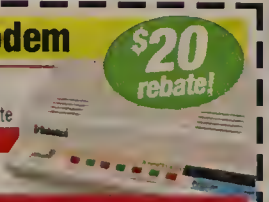

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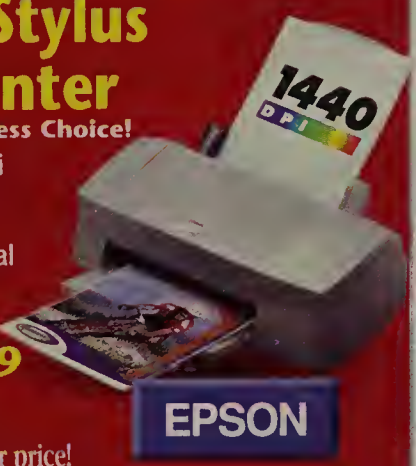

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- 6 or 12GB Ultra ATA hard disks or a 9GB Ultra2 LVD SCSI hard disk
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- Two USB ports for keyboards, mice, printers—up to 127 devices at once
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BYTEmark integer test

Power Macintosh G3/400	13.31
Power Macintosh G3/350	11.51
Power Macintosh G3/300	9.85
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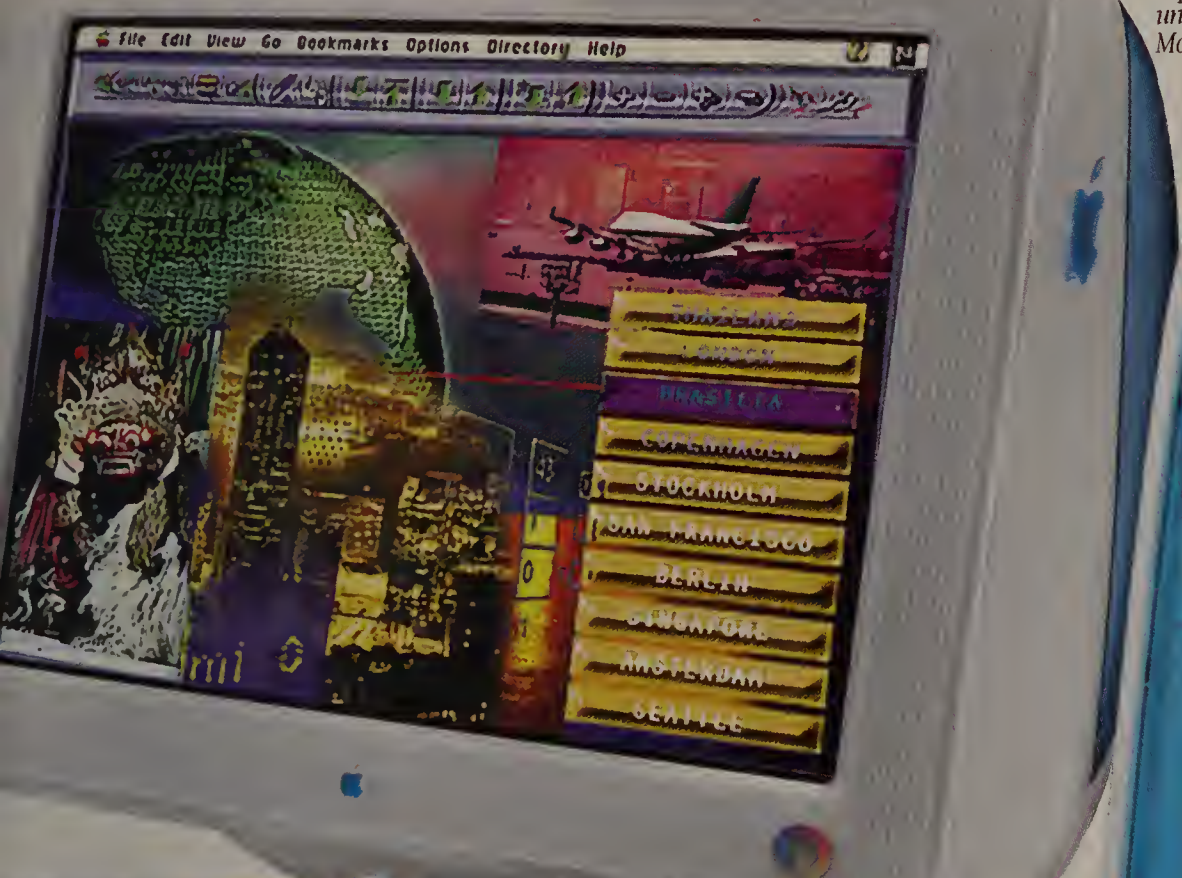

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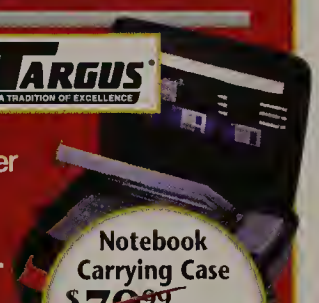

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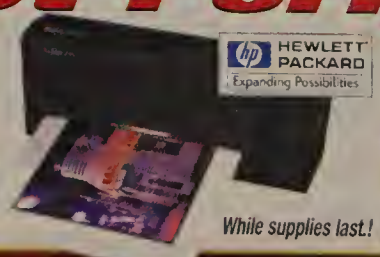

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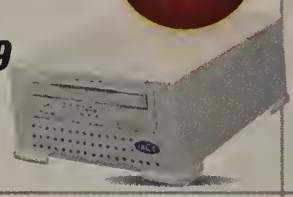

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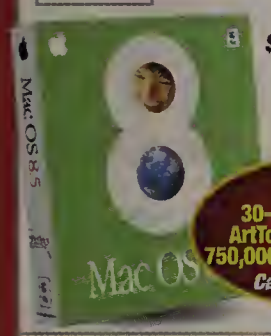

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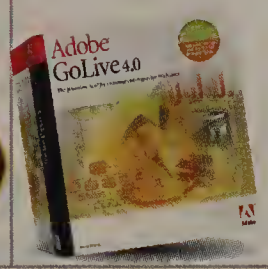

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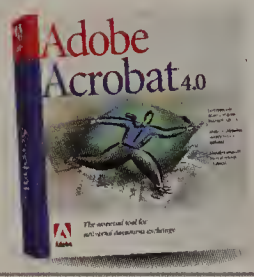

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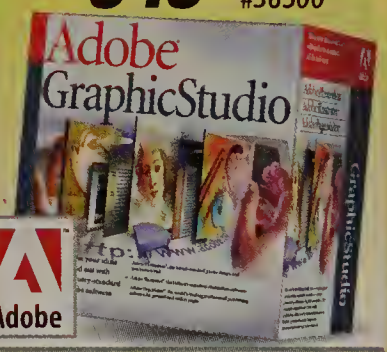

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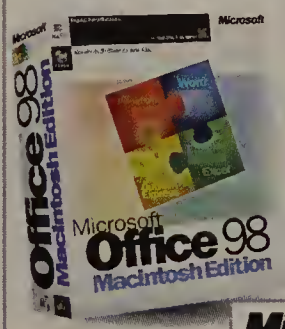

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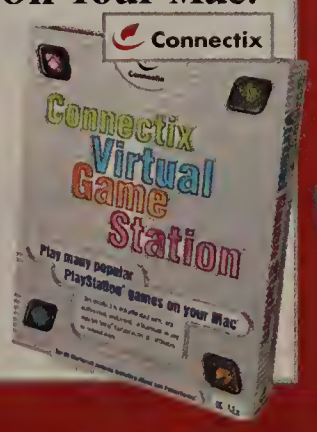

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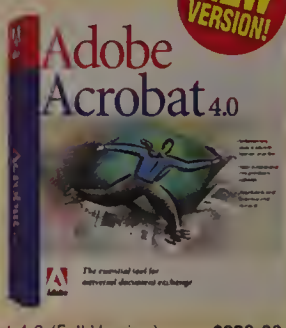

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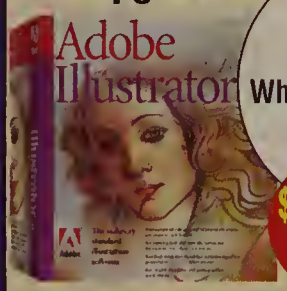

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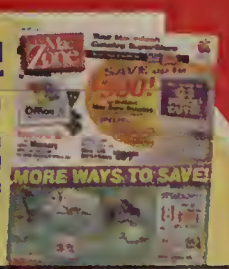

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Model	Description	Int.	Pro
APS Q 4500 U2W	Quantum Viking II, 4345MB, 7200 rpm	299.95	369.95
APS Q 9000 U2W	Quantum Viking II, 9000MB, 7200 rpm	519.95	589.95
APS ST 9000 U2W	Seagate Barracuda, 8683MB, 7200 rpm	509.95	579.95
APS I 9000 U2W	IBM Ultrastar 9ES, 8715MB, 7200 rpm	519.95	589.95
APS I 9100 U2W	IBM Ultrastar 9LZX, 8705MB, 10,000 rpm	549.95	619.95
APS ST 9100 U2W	Seagate Cheetah, 8683MB, 10,000 rpm	729.95	799.95
APS I 18000 U2W	IBM Ultrastar 18XP, 17501MB, 7200 rpm	819.95	889.95
APS Q 18000 U2W	Quantum Atlas III, 18201MB, 7200 rpm	819.95	899.95
APS ST 18000 U2W	Seagate Barracuda, 17366MB, 7200 rpm	799.95	869.95
APS ST 18100 U2W	Seagate Cheetah, 17366MB, 10,000 rpm	1,149.95	1,219.95
APS I 36000 U2W	IBM Ultrastar, 35140MB, 7200 rpm	1,699.95	1,769.95

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How to spend less time

Macworld recently named the APS CD-RW 4x2x6 as the winner of the 1998 Eddy for Storage Product of the Year. The APS CD-RW 4x4x16 is the successor to the award-winning drive.

APS CD-RW 4x4x16

- 167% faster reads and 100% faster rewrites than CD-RW Pro 4x2x6
- The ultimate rewritable CD drive for professional environments

APS proudly introduces our fastest rewritable CD drive ever. The 4x4x16 is fast enough to handle all CD functions, including 16X reads for power users. This tray-loading drive offers a huge 2MB buffer to prevent underruns and failed recordings. The 4x4x16 is Flash ROM-upgradeable for future formats and operating systems. Plus, you get full-featured, professional-level recording software for both Mac and PC. No matter if you develop demanding multimedia or software, produce music or graphic designs, the CD-RW 4x4x16 is the only CD drive you need.

As low as $399.95
External Configuration

APS CD-R 4x12

- Excellent price/performance
- Top value for multimedia producers, music, design and prepress pros

The APS CD-R 4x12 is one of our best recordable CD values. With 12X read and 4X write capabilities, you can burn multimedia and audio CDs at 1X, 2X or 4X speeds in any standard recording format. Includes all the CD recording software you need.

As low as $319.95
External Configuration

Order from our special Online Catalog at www.apstech.com/mwspecial/

APS CD-R 4x8

- Excellent value for burning CDs for personal or small business uses
- Includes PC/Mac recording software

The APS CD-R 4x8 gives you excellent price/performance for CD production at home. Powered tray-loading eliminates inconvenient caddies.

As low as $269.95
External Configuration

APS CD-R/RW MEDIA

Item Description	Price
APS CD-R Value Pack CAT. #1020-001-001	$49.95
APS CD-R Media 10pk. CAT. #1020-001-002	19.95
APS CD-RW Media 5pk. CAT. #1020-002-004	59.95
APS CD-RW Media 25pk. CAT. #1020-002-001	319.95
APS CD-RW Media 50pk. CAT. #1020-002-0022	599.95

APS CD-RW 2x2x6

- Record, read, and edit any kind of data on CD-RW media
- Also records on inexpensive, play-anywhere CD-R discs

Whether you're producing a multimedia title or just want to send your mother a QuickTime movie of your honeymoon, this versatile drive is the inexpensive solution for writing and reusing CD-RW discs. The APS CD-RW 2x2x6 also writes to cost-effective CD-R discs. It can even play your gaming CD-ROMs and music CDs. This drive provides 2X recording, 2X rewriting, and 6X playback. The APS CD-RW drive includes all the Mac and PC recording software you need to master your CDs. Ships in the APS Pro enclosure.

As low as $369.95
External Configuration

APS CD 40

- New 40X CD-ROM whips through challenging multimedia titles, training discs
- Multiread capabilities recognize virtually any disc, including CD-R and even CD-RW
- Includes performance enhancing software

Now, you can get 40X CD speed at a 36X price. The APS CD 40 gives you the fastest speeds around. But it costs about the same as our previous generation, the CD 36. This new CD speedster handles your most demanding CD-ROM titles with ease. It also reads your custom CD-R and CD-RW discs, so it's perfect for using training discs at the desktop. Shift into high gear with the APS CD 40 today.

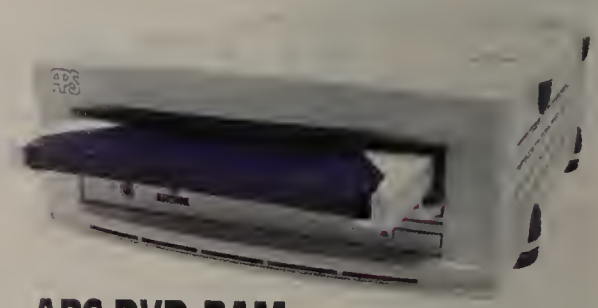
As low as $149.95
External Configuration

APS CD-R 8x20

- Super-speedy CD burner for creative professionals
- 8X record/20X read mechanism
- Includes full-featured CD recording software for Mac and PC

Hit the afterburner! The CD-R 8x20 is our fastest CD recorder ever. The blazing 8x20 mechanism cranks out your CDs in record time, so you spend less time burning and more time creating. If your payday depends on producing CDs, punch in with the APS CD-R 8x20.

As low as $449.95
External Configuration



APS DVD-RAM

- New mechanism brings reduced price on DVD-RAM capabilities
- Up to 5.2GB capacity on double-sided DVD-RAM discs
- 1MB cache buffer
- Reads all previous CD and DVD formats, including CD-R and CD-RW media

This spectacular new storage technology is expected to become the new worldwide standard.

Limited Supply $599.95
External Configuration

worrying and more time creating.

APS AIT Plus

- Safeguards up to 35GB native on AIT Plus tape
- Super-fast backup speeds for mid-range and application server backup, even DV storage

If you thought DLT was your only choice for mammoth backups, think again. The new AIT Plus challenges the DLT70 in both capacity and transfer speeds. Self-cleaning features and low cost of ownership.

As low as $1,999.95
External Configuration

W/2940UW $2,199.95
External Configuration

APS HyperDAT® III

- 12GB native backup for high-end workstations, entry-level networks
- Reliable DDS-3 technology

The APS HyperDAT III provides a cost-effective solution to the backup needs of data-intensive systems. Transfer rates of up to 60MB/s for fast backups

As low as $979.95
Internal Configuration

APS HyperDAT® IV

- Longer tape, higher density vault DDS-4 into corporate network backup
- 20GB native capacity, 2-3MB/s transfers

If you trust your desktop and workstation backup to DDS, but it doesn't meet your server or workgroup needs, take a second look. New DDS-4 technology has increased capacity by 67% over DDS-3 and shrunk your backup time in half. But the HyperDAT IV can read and write to your DDS-3 and even DDS-2 tapes, so migration is painless. Why not add the HyperDAT IV for your big jobs?

NovaBack $1,349.95

Retro/Cheyenne $1,399.95
External Configuration

APS DLT40

- Super-fast, reliable, high-capacity backup
- Worldwide leader in server, network and enterprise backup
- Protects up to 40GB* of business-critical data at up to 180MB/second

The APS DLT40 gives you network administrators and IT managers the absolute protection you need. And it squeezes backups into the shrinking windows you have. Quit putting up with slow, multiple-tape backups. Upgrade to the APS DLT40 today.

$1,999.95
External configuration

APS TAPE BACKUP SYSTEMS

Model	Description	Internal	External
APS HyperQIC®	Travan-4/NS8/QIC	$299.95	$349.95
APS HyperQIC® II	Travan-5/NS20/QIC	499.95	549.95
APS HyperDAT®	DDS-2/DAT (4-8GB)	549.95	599.95
APS HyperDAT® Pro	Quad-speed DDS-2/DAT (4-8GB)	649.95	699.95
APS HyperDAT® III	DDS-3/DAT (12-24GB)	979.95	1,029.95
APS HyperDAT® IV	DDS-4/DAT (20-40GB)	1,299.95	1,349.95
APS Mini Library	4mm DDS-2 AutoLoader (32-64GB)	N/A	2,399.95
APS DLT40	DLT 4000 (20-40GB)	N/A	1,999.95
APS DLT70	DLT 7000 (35-70GB)	N/A	4,999.95
APS AIT Plus	8mm Advanced Intelligent Tape (35-70GB)	N/A	1,999.95
APS AIT Plus Autoloader	8mm AIT, 200GB on 4 tapes	N/A	4,799.95

Drives on these pages are covered by the APS 30-Day Money-Back Guarantee.

APS HyperQIC®

- Protects up to 4GB at 25MB/minute native
- "...the best back-up solution available for the home and small offices." – Brad Miser, **Using Mac OS 8.5**

The APS HyperQIC remains a best-selling tape backup solution. Now, it is better than ever. This Travan-4/QIC drive now has hardware compression for faster backups and more efficient data storage. You can safeguard up to 8GB of valuable business or personal files on one tape with the new compression. The APS HyperQIC is recommended as the best backup solution for home and small offices in **Using Mac OS 8.5** by Brad Miser. The HyperQIC is just as good for Windows users, too.

W/AHA-2906c $399.95
External Configuration

APS HyperDAT® Pro

- Backup and restore speeds as high as 50MB per minute
- Up to 8GB of storage per 120m DAT/DDS-2 tape cartridge

CLEARANCE

Backup in less time! The APS HyperDAT Pro is perfect for high-end desktop backups. With standard 120m DDS-2 tapes the APS HyperDAT Pro can backup up to 8GB of data (assuming 2:1 hardware compression). The HyperDAT Pro can also use economical 60m and 90m tapes. Comes with backup software and includes a two-year warranty.

NovaBack $699.95

Retro/Cheyenne $749.95
External Configuration

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Eleven ways to turn your

MW EDITORS' CHOICE

The APS Jaz II sports exclusive features that make it more reliable than Iomega's own.

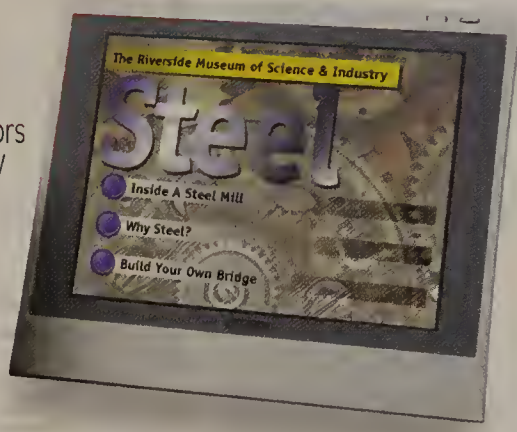
APS Jaz II

- A staggering two gigabytes of removable storage
- Perfect for multimedia producers, graphic designers and service bureaus

Introducing the next big thing: the APS Jaz II. Based on revolutionary Jaz technology, this drive offers a whopping two gigabytes of removable storage. And the new Jaz II is even faster, coming closer still to hard drive access and read/write speeds. This drive will also read and write to your current 1GB Jaz disks, so you don't have to worry about wasted investment. For digital video, multimedia and publishing businesses, the APS Jaz II is perfect for carrying huge files and quickly accessing client data. It's time to move up to the APS Jaz II. Includes one 2GB Jaz disk.

APS JAZ II $439.95
APS Pro Enclosure

Wacom LCD Display Tablets



- Amazing tablets act as monitors – you draw and design directly on screen and work more intuitively
- Pressure-sensitive tablets (256 levels) include cordless Erasing UltraPens
- Must-have for cutting-edge graphics pros, animators, Web designers, multimedia

At APS, we are not easily impressed by new technologies. But Wacom has knocked our socks off. The new LCD Display Tablet line is like having the monitor screen on your lap or desk. You can design, illustrate, paint, animate and edit on-screen more accurately – to within 0.02 inches. We could say more, but you really have to see it to believe it. Be the first on your block to get a Wacom LCD Display Tablet. Call today.

WACOM PL-300 W/ 10.4" WORK AREA $2,199.95
PL-400 - 13.3" work area - $2,999.95

Sony CPJ-D500 Portable Projector

- Lightweight projector for heavyweight presentations
- 8.3lbs. and sets up in seconds

The CJP-D500 helps you hit your audience right between the eyes, but takes it easy on your back. Fully VGA-compatible, the CPJ-D500 gives you 24-bit color output at 640 x 480 resolution from a bright, long-lasting 80-watt metal halide bulb. Includes an RCA video input jack, microphone input jacks and stereo headphone output jack to drive external speakers. Accepts PC, Macintosh, NTSC and PAL input. Includes RGB and power cables, presentation software and carrying case.

SONY CPJ-D500 PROJECTOR $1,799.95

APC Back-UPS Pro

- Extra surge suppression and longer runtime
- Key component in protecting your data and equipment

Tape backup is critical to safeguarding your irreplaceable data. But it wont' stop lightning from frying your motherboard. Back-UPS Pro, the ultimate workstation UPS, safeguards your data and equipment, like your CPU, drives, and monitor, against disasters like lightning strikes. And the uninterruptable power supply gives you time to save your files and shut down in case you ever lose power. Don't wait until it's too late. Get Back-UPS now.

CAT #	TEM DESC	OUTPUT VA	CAP WATTS	TYPICAL RUNTIME	BAT OUTLETS	SURGE ONLY OUTLETS	DIMENSIONS (H" X W" X D")	PRICE
108355	BP280S	280	180	7-13 MIN	2	1	6.6 X 4.7 X 14.5	$139.95
108356	BP420S	420	260	12-18 MIN	3	3	6.6 X 4.7 X 14.5	219.95
108357	BP650S	650	410	35-40 MIN	3	3	6.6 X 4.7 X 14.5	269.95
108717	BP1000	1000	670	10-15 MIN*	6	N/A	8.5 X 6.7 X 17.3	369.95
108714	BP1400	1400	950	15-20 MIN*	6	N/A	8.5 X 6.7 X 17.3	459.95

*With 3 computers connected.

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- Print professional-looking documents for home or small business
- 1440 dpi and Micro Piezo technology for sharp details, no splatters
- Faster color printing (up to 10 ppm) makes you more productive

Stylus Color 900

The new Stylus Color 900 lets even home and small businesses print corporate-class documents. And you can print color pieces faster than ever. So you spend less time waiting and more time drumming up business. Plus, with USB, parallel and Mac serial connections, you can use this image-maker with almost any computer. Get sharp, brilliant color fast and make a splash with the Stylus Color 900 from EPSON.

EPSON STYLUS COLOR 900 PRINTER $429.95

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fantasies into digital reality.

The 21" Sony Multiscan 500PS offers 1600 x 1200 @ 80Hz max. resolution and a super-flat display.

Sony Multiscan 500PS Display

- 21" display for demanding design and imaging professionals
- 40-50% flatter CRT and higher scan rates for superior viewing

This Trinitron monitor offers the larger screen sizes you need to see your project all at once, plus the technology to make it really pop off the screen. The compact design takes up minimal desk space. Digital Multiscan technology allows you to switch among graphics modes effortlessly. Higher scan rates, dual inputs and user-adjustable color temperature settings make these the most flexible and customizable displays on the market. You demand the best from yourself. Now you can demand the best in computer displays and get the Sony Multiscan 500PS.

SONY MULTISCAN 500PS $1,179.95

Sony DCR-TRV9 Digital Video Camcorder

- 1/4" 680K pixel CCD for excellent DV picture quality
- 15X optical/180X precision digital zoom lens for field work
- i.LINK/IEEE 1394 interface for totally digital transfers – no loss of quality

The DCR-TRV9 gives you professional digital video at a budget-conscious price. You can even capture 16-bit stereo audio for a complete multimedia experience. So explore the world of digital video with the DCR-TRV9.

SONY DCR-TRV9 DV CAMCORDER $1,799.95

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- Convenient digital cameras capture photos and video
- Store and transfer content on standard floppy disks
- Add images and multimedia to presentations, Web sites

The MVC-FD81/91 Digital Mavica Cameras grab digital photos and video quickly. And these smart cameras store their contents on standard floppies that you can use to easily transfer your images to your Mac or PC. The FD81 offers a 3X zoom lens. The FD91 really gets in there at 14X. And you can record up to 15 seconds of presentation-quality MPEG video or 60 seconds for a video e-mail. Pick up a MVC-FD81/91 Digital Mavica Camera today.

MVC-FD91

MVC-FD81

MVC-FD 81 $749.95

MVC-FD 91 $909.95

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- *SCSI cables sold separately.*
- *APS' warranty is a pass-through of the mechanism manufacturer's warranty which will be serviced by APS for one year. APS warrants APS branded enclosures, brackets and power supplies for a period of one year from the date of purchase and will, at its discretion, replace or repair products found to be defective according to the specific terms of the warranty accompanying the product.*
- *Refused orders subject to 20% restocking fee.*
- *International customers must pay for all shipping charges.*
- *Listed capacities are formatted.*
- *Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.*
- *Prices and specifications are subject to change without notice.*
- *You must install system software appropriate to your machine before using our hard drives.*
- *Not responsible for typographical errors.*
- *Your APS Drive unit may contain one or more components that were in prior use, but which have been inspected and repaired or rebuilt as necessary. These components, if any are covered by the same warranty provisions, exclusions and limitations to the same extent, and on the same terms as otherwise "new" components.*
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Bridges/Routers/Gateways, Complete Communication Packages, Facsimile, Host Connectivity/Emulation
Power Equipment
Power Adapters, Power Conditioners, Power Isolators,
Supplies & Batteries, Premise Wiring & Rack Systems
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Ultra2/LVD Wide SCSI support
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implemented in the controller
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optimization. The cachin
function is designed wit
intelligent read-ahead an
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a drive channel or a host channel. This allows the connection of molt
host systems through independent channels. Channel 0 of the controllers can b
further assigned as synchronized cache port for Active-active redundancy. Th
controllers can even handle bad sectors on drives during disk read or wri
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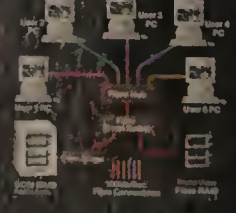

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30 GB	DLT 2000XT	150 MB/Min.	1495
40 GB	DLT 4000	180 MB/Min.	1979
70 GB	DLT 7000	600 MB/Min.	3989
144 GB	HP1559 DDS3	120 MB/Min.	3295
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MAXPOWER G3 366MHZ	1024K/183 7300-9600	$1269
MAXPOWER G3 400MHZ	1024K/200 G3	$1519

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7200RPM 1024K BUFFER 6.9MS SEEK

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18.2GB (QM318200TN-LW) $1159 Ext: $1249
36.2GB (QM336400TN-LW) $1859 Ext: $1949
10000RPM 2048K BUFFER 5.5MS SEEK

Quantum VIKING II U2W

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9.1GB (PX39100LW) $349 Ext: $439
7200RPM 512K BUFFER 7.5MS SEEK

Quantum ATLAS III U2W

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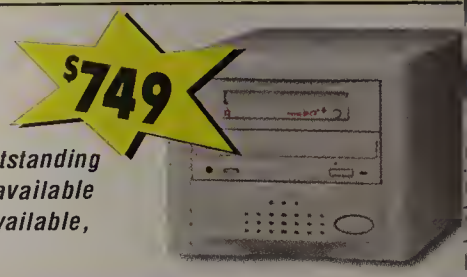

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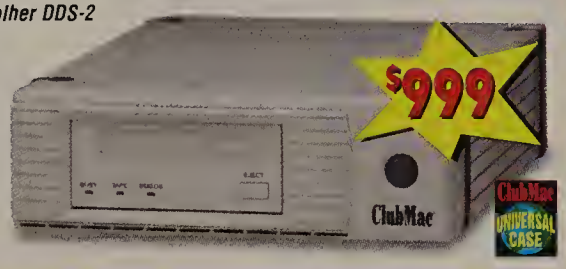

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UMAX Astra 1220U, 36 bit USB scanner	$129 †
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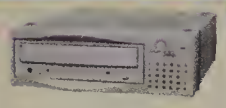

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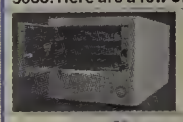
External (YCRW4416MX)	$409

DVD RAM

Toshiba SCSI DVD RAM drive (SDW1101)	$459
Panasonic SCSI DVD RAM drive (LFD101U)	$569
Mac DVD RAM driver software (MDVDSFT)	$59
DVD RAM media (DVDRAMDISK)	$35
Fargo InkJet CD Color Printer (CDPRINTER)	$999
Adaptec Ultra Wide PCI controller (A2940MUW)	$259
Adaptec Ultra-2 PCI controller (A2940MU2W)	$389
Pioneer SCSI 5X DVD ROM (DVD303)	$169
Cedar CD Duplicator (9CEDARDUP50)	$4999

RAID

We can custom configure a RAID system to your exact needs. Call one of our RAID experts at 800-786-5653. Here are a few of our popular RAID components.



Enclosure holds 3 Hot Swappable SCA drives

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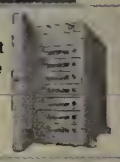

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9.1GB	7200	1MB	XP309100S	$389
18.2GB	7200	1MB	XP318200S	$709
ULTRA WIDE SCSI				
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9.1GB	7200	512K	VK309100W	$359
ULTRA-2 SCSI				
4.5GB	7200	512K	VK304550LW	$249
9.1GB	7200	512K	VK309100LW	$359
9.1GB	7200	1MB	XP309100LW	$389
18.2GB	7200	1MB	XP318200LW	$709
ULTRA-2 SCSI A/V (Min sustained 10MB/sec)				
4.5GB	7200	512K	VK304550LV4	$279
9.1GB	7200	512K	VK309100LV4	$389
18.2GB	7200	1MB	XP318200LV4	$739
IDE				
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4.3GB	5400	2MB	CR304300A	$139
6.4GB	5400	128K	FB306400A	$149
6.4GB	5400	2MB	CR306400A	$159
8.4GB	5400	2MB	CR308400A	$185
12.7GB	5400	512K	FB312700A	$225
12.7GB	5400	2MB	CR313000A	$249

IBM

ULTRA SCSI				
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9.1GB	7200	2MB	IBM309170N	$539
18.2GB	7200	1MB	IDGHS18Z	$719
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ULTRA WIDE SCSI				
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9.1GB	7200	512K	IBM39130W	$389
9.1GB	7200	2MB	IBM309170N	$539
18.2GB	1" High	2MB	IBM318350W	$899
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9.1GB	10020	1MB	IDRVS9UZ	$569
9.1GB	10020	4MB	IDRVS9UZ4	$599
18.2GB	7200	1MB	IDGHS18U2	$719
18.2GB	10020	4MB	IDRVS18ZX	$979
18.2GB	1" High	2MB	IBM318350U2	$899
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10.1GB	7200	512K	IBM10GXP	$239
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4.5GB	7200	512K	ST34573W	$349
6.5GB	7200	512K	ST36530W	$279
9.1GB	7200	512K	ST39140W	$345
9.1GB	7200	1MB	ST39173W	$389
18.2GB	7200	1MB	ST118273W	$729
ULTRA-2 SCSI				
4.5GB	7200	1MB	ST34573LW	$349
4.5GB	10,000	1MB	ST34502LW	$499
9.1GB	10,000	1MB	ST39102LW	$599
9.1GB	10,000	4MB	ST39102LW4	$649
9.1GB	7200	1MB	ST39173LW	$389
18.2GB	7200	1MB	ST118273LW	$745
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18.2GB	10,000	1MB	ST118202LW	$999
18.2GB	10,000	1MB	ST318203LW	$1459
18.2GB	10,000	4MB	ST118202LW4	$1149
36.4GB	7200	1MB	ST136475LW	$2129
36.4GB	10,000	1MB	ST136403LW	$2459
50.1GB	7200	1MB	ST150176LW	$2669
IDE				
4.3GB	5400	128K	ST34321A	$135
6.4GB	5400	256K	ST36422A	$155
8.6GB	5400	128K	ST38641A	$169
10.2GB	5400	128K	ST310240A	$190

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8.4GB	5400	256K	WDAC28400	$165
10.2GB	5400	512K	WDAC310200	$200
13.0GB	5400	512K	WDAC313000	$245

Maxtor

IDE				
8.4GB	5400	512K	M90845D	$169
10.0GB	7200	512K	M91024D	$219
13.0GB	5400	512K	M91303D	$229
15.3GB	7200	512K	M91536D	$295
17.2GB	5400	512K	M91728D	$295
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4.3GB	8.45mm	Toshiba	MK4309MAT	$189
6.4GB	12.7mm	Toshiba	MK6409MAV	$259
6.4GB	9.5mm	IBM	DB206480	$239
8.1GB	12.5mm	IBM	DC208100	$509
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14.1GB	17mm	IBM	DC214000	$749

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4-8GB	60MB/min	HP C1599AI	$719
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12-24GB	132MB/min	Seagate STD224000N	$849
12-24GB	120MB/min	HP DDS-3 C1554AI	$929
20-40GB	288MB/min	Sony DDS-4 SDTI0000AI	$1129
32-64GB	90MB/min	Sony TSL7000 8 tape load	$1899
48-96GB	48MB/min	Seagate STL496000N	$2199
72-144GB	120MB/min	HP C5648A 6 tape load	$2679
• EXABYTE 8mm DAT •			
7-14GB	120MB/min	ELIANT820	$1279
20-40GB	360MB/min	EXB8900	$2489
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35-70GB	600MB/min	DLT7000	$4579

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2.6GB SCSI drive	$1089
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Pioneer	DRU706S	36X	70ms	$89
Toshiba	XM6401B	40X	79ms	$99
Plextor	PX40TS	40X	85ms	$139
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Plextor	PX40TSUW	40X	85ms	$179
• IDE •				
Mitsumi	CRMCFX34X	34X	85ms	$59
Pioneer	DRU944	40X	70ms	$64
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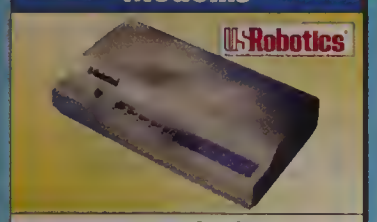

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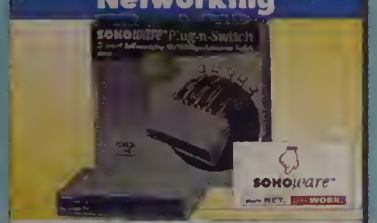

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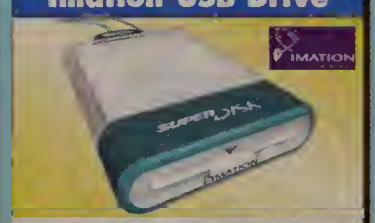

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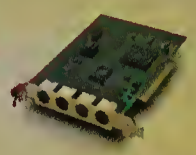

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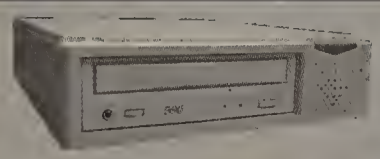

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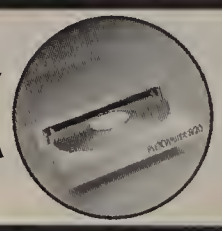

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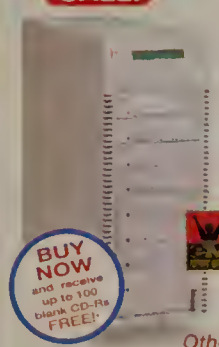

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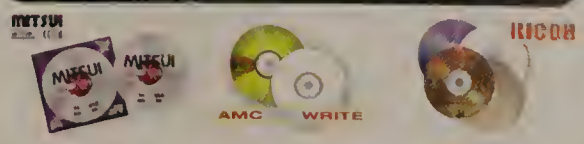

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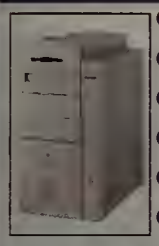

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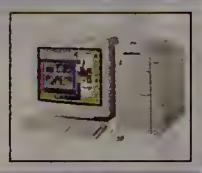

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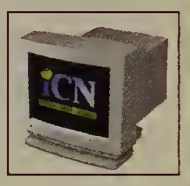

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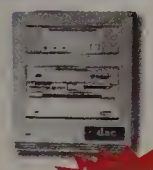

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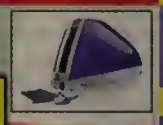

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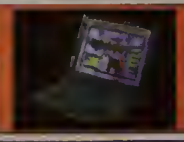

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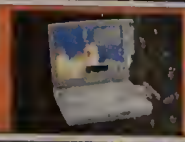

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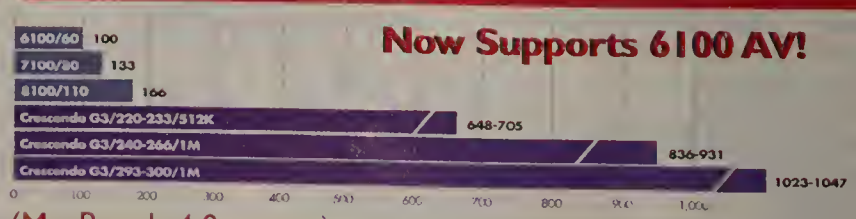

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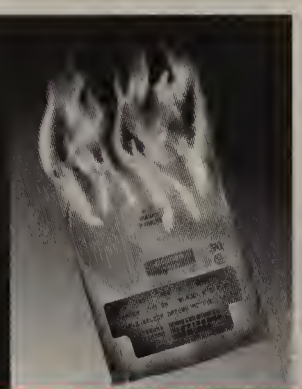

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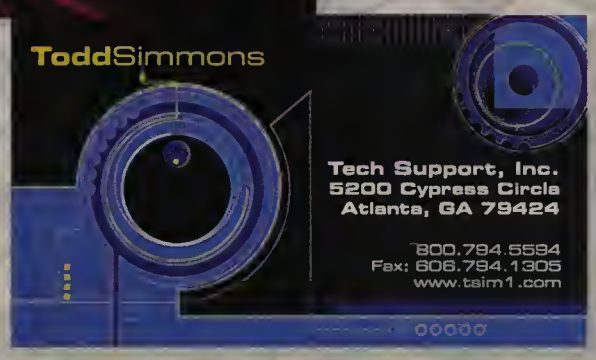

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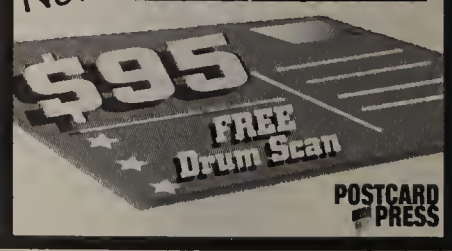

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The Desktop Critic

by David Pogue

Attack of the Living E-Mail

IN THE BATTLE OF MAN VERSUS IN-BOX, SOFTWARE WINS

HOW COULD ANYone not love e-mail? It's cheap; it fosters literacy; it provides a written record of what's been said. Best of all, it's delivered almost instantaneously, like a phone call—but you answer it at your leisure, like U.S. mail. Nobody ever had to get up from dinner to answer an e-mail. (Nobody with a life, anyway.)

Unfortunately, e-mail can get out of hand. Take my bloated, overtaxed Claris Emailer box: spam, mailing lists, and tech-support pleas from readers were drowning me, even as my book deadlines were crashing down in flames. One frightening morning I awoke to find that I was exactly 1,749 messages behind.

I did some research: How did other high–e-mail–traffic individuals handle the deluge? Andy Gore, *Macworld*'s editor in chief, reads all messages, forwards lots to appropriate parties, but responds only to the ones he's best qualified to answer. Harry Connick Jr. lets his office handle requests (autographs, tour dates, photos); he answers the others according to "the lottery system." Rush Limbaugh claims to get 12,000 messages a day, which he promptly deletes. (In that case, why publish your e-mail address at all?)

As best as I could tell, those strategies rely primarily on deleting huge swaths of messages. Yet much of my material comes from the suggestions, corrections, and ideas in those e-mails. Furthermore, my hardwired Midwestern sense of duty compels me to answer reader messages as part of the unwritten book buyer–author contract. How could I keep both my e-mail address and my sanity? I decided to apply technology to the problem.

E-mail Sanity Strategy

Phase I: Delete Spam Too many of my incoming e-mails run along the lines of "MAKE MONEY SALTING CRACKERS AT HOME!" or "SEXXXXY TRUCK DRIVERS ARE WAITING FOR YOUR CALL!" If I'd started my Internet life ten years ago by keeping one address just for e-mail, I wouldn't be in this mess. My mistake was posting messages on bulletin boards, where software-scavenger spam robots pick up addresses.

Still, I found a way out in, of all places, *Macworld*. A sidebar in "Tame Your E-Mail" (June 1998, available at www.macworld.com) leaked the trick to having your e-mail program route spam automatically to the Trash. Bingo!

Phase II: Autofile I subscribe to a bunch of Internet mailing lists, such as the EvangeList and a PalmPilot discussion group. Using the same filtering trick described in that *Macworld* article, I taught my e-mail program to autofile mailing-list messages into folders of their own. Only actual personal messages remained in my in-box.

Phase III: FAQs To siphon the frequently asked questions out of my e-mail, I created a FAQs page at my Web site. No longer did I have to type out answers to "How do I do a clean install?" and "What's a Type 3 error?"; instead, I could refer the authors of such questions to www.davidpogue.com.

Phase IV: TypeIt4Me This brilliant shareware control panel (available at www.macdownload.com) lets you set up auto-expanding abbreviations that work in any program. I type **ty** and get "thank you." I type **csi** and get "A clean system-folder install will solve your problem." I type **gbye** and get "In this age of impersonal, faceless communication, isn't it wonderful that we can take a quiet moment to exchange personal messages?"

Phase V: Denial of Service Most of my tech-support messages come from readers of my books; in this world of $35 calls to Apple, I can understand their plight. Where's a person supposed to turn for help these days?

Unfortunately, more and more of these messages begin: "I heard in a chat room that you give free tech support. So here's the problem with my ImageWriter . . . "

After much soul-searching, I decided to play hardball. I created a macro that offers ten free sources of help, such as Apple's Tech Info Library and NoWonder.com. This macro explains that I just can't answer personal questions from everyone on the planet—and still have time to write stuff that could help larger groups of people.

Après le Déluge

My assault on Mount E-Mail, I'm happy to say, has cut the tidal wave down to a mere waterfall. Nowadays, my software tricks let me spend only two hours a day answering mail.

Meanwhile, I'm still on the quest for shortcuts. If you've got any great ideas, my e-mail address is david@—actually, never mind. **m**

DAVID POGUE (www.davidpogue.com) is the author of *The iMac for Dummies* (IDG Books Worldwide, 1998).

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